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INDUSTRY EXCELLENCE AWARDS 2012
Winner 2012 - Development Legend
David Perry

DEVELOP AWARDS

PERRY NAMED DEVELOPMENT LEGEND

"I'm really sharing this award with every person and every gamer that's ever supported the stuff I've worked on, or the teams that I've worked with."

David Perry's career profile starts on **page 38**

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DEVELOP AWARDS

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MOBILE MIDDLEWARE SPECIAL

Key figures from the leading tool firms shed light on migrating their technology to mobile

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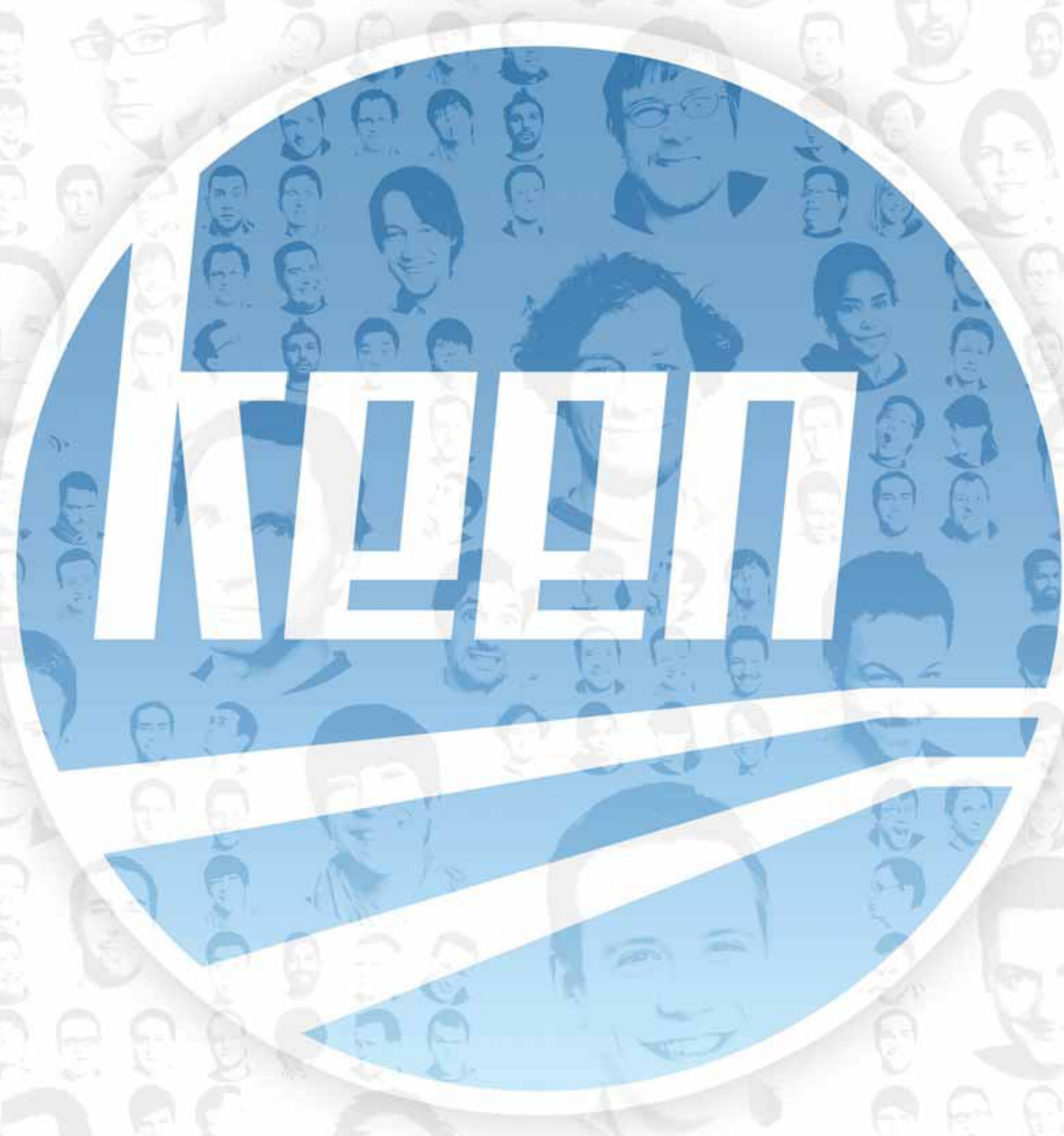

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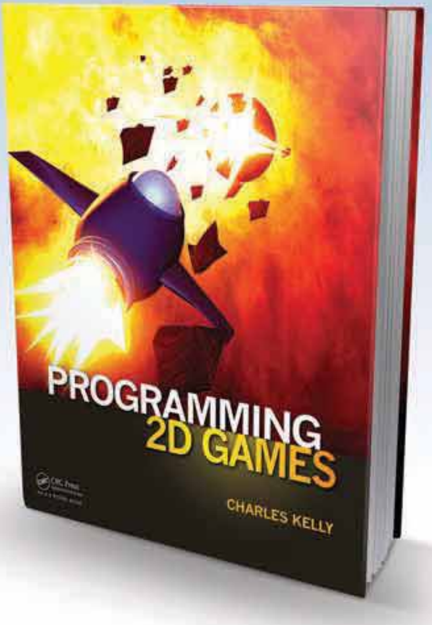

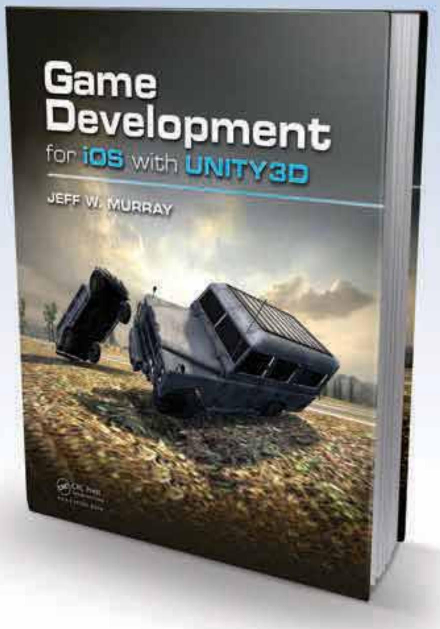

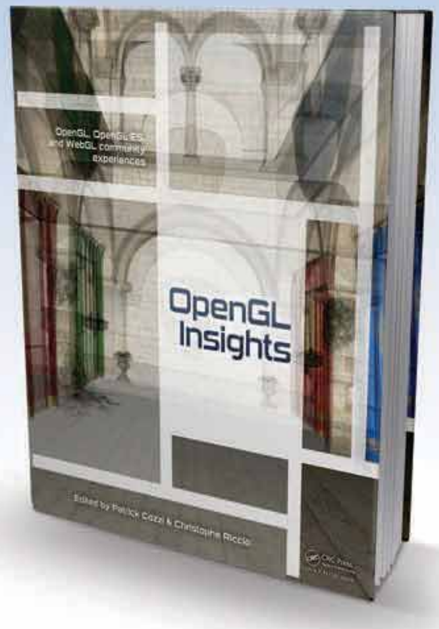

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Charles Kelly

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Jeff W. Murray
Psychic Parrot Games, Ottawa, Ontario, Canada

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Edited by

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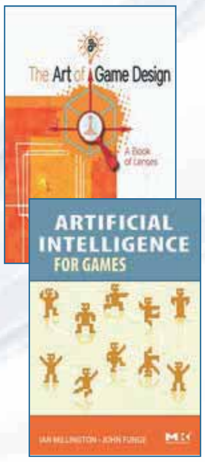

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ALPHA

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EDITORIAL

GAMES DEV GROWS UP?

AS YOU READ through this month's *Develop*, you might spot something of a theme.

It's one that emerged organically, and it's something those sensitive about the passage of time might want to ignore.

On this very page we've spoken with Bioware Mythic's Eugene Evans, who can boast 30 years in the industry. Then there's our profile of Development Legend winner David Perry, who joined the profession at the dawn of the 1980s.

Elsewhere in this issue there's a profile of *Total War* developer The Creative Assembly, which this month celebrates 25 years of creating games. And our own Develop Industry Excellence Awards, covered in detail from page 26 of the magazine you hold in your hands, are already ten years of age.

For just as long there's been talk of games growing up; in terms of theme, and of the average age of the consumer rising.

And now, like it or loath it, the individuals, tools and technologies behind a good chunk of today's games have a generous number of years in the profession behind them.

Could it be that this is all our youthful, misunderstood industry needs? A few years in the bag to finally reach the point of regard and respect we've long deserved?

More than one regular reader has suggested before that our annual 30-Under-30 feature should be accompanied by a 50-Over-50 spotlight. Perhaps they are right.

Or, should we lend more of an ear to the young indies and start-ups defining the future? Flick through this issue, including the Awards piece, and you'll see plenty of those, which we hope proves we think both matter. We're lucky to have the experience of Perry and Evans in the same space as so many spiritied young studios. Our industry has maturity and youth in a tight-knit sector, making games development today stronger than ever.

Will Freeman
will.freeman@intentmedia.co.uk

Will

The man, the Mythic

BioWare Mythic studio GM and VP Eugene Evans can boast of a 30-year career in video games. He tells **Will Freeman** how that affects his perspective of today's industry, and his optimism about free-to-play

Back in 1982 you co-founded Imagine Studios, which rose and fell dramatically in 18 months. There's numerous tales from that era that make games developers of the time – including Imagine – sound quite anarchic, even a little rock 'n' roll. Is that spirit missing from today's developers?
I think it probably does still go on, but it's not something they can show outwardly. 30 years on I can speak about it openly because I'm speaking retroactively, but back at the time all of that was hidden behind a veneer and hype, which was how we portrayed ourselves.

I know a lot of great start-ups today, and I know a number of them where all those kind of things definitely do go on, but they can't talk about it right now. It remains hidden. One day they'll maybe be able to talk about how it really is today. I don't think that spirit has gone, and today we have some remarkable start-ups, who are doing some of the most amazing, bold things.

But, especially in the market today where a lot of these start-ups are raiding money from some very serious people, and having to look for the right business plan, you have to be careful. I'm sure if you look at somebody like David Perry and Gaikai, maybe they'll have some great stories about what they've had to do to get where they are.

In fact I think, because of the fact that the market has become so big now and the volume of money has made it so serious, the really impressive start-ups today are the ones that are totally bootstrapping it. Those guys with an idea that are really living it today; they have what we did at Imagine.

So you have faith in today's new wave of games developers?
Absolutely, because something like Facebook or the openness of developing on iOS means a small company can start and produce a game. For a while there that did go away, because the of the sheer scope and scale of making a game in the nineties, and because games platforms became closed platforms.

But now we've got this proliferation of platforms which are open. I'm a big supporter of – and will always plug – the Raspberry Pi Foundation whenever I can.

If anything, my worry about today's development industry is not that there aren't some great, bold start-ups today. It's that there isn't necessarily that next generation.

So what makes you enthusiastic about Raspberry Pi? Is it the spreading of computer science?
Yes, and I've seen a similar problem in the US, where computer science has become IT. They'll teach you how to use Microsoft Office, but that's about the extent of it. At least in the US equivalent of schooling up to 16 years old, it's a similar issue. David Braben told me he recently saw a class of kids aged from seven-to-nine being taught programming. Imagine what they're going to be like; precocious little terrors, but they're going to be that next generation that are going to be starting up those bold new start-ups. That's what gives me hope for the future.

The challenge with this was that there was a period where kids were into gaming and buying consoles more than ever before, but they were just playing. Even though there was this emerging college market for education in gaming, it still wasn't the same as getting in really early and teaching computer programming, or the drawing of game art or the making of music for games.

Today I'm more hopeful than ever in that regards, that kids will have an opportunity with computer science, meaning we'll see more bold start-ups doing interesting things.

It's not just with the start-ups either. The good thing is within companies like EA – and this is one of the things I like about EA – there's a lot of support for that idea. With the diversity within the games sector of markets and types of games, there's a recognition that we need those bold efforts to do new and often experimental things within the company. You might not see it from the outside necessarily until it emerges, but it certainly exists at EA, and I think and hope it exists at other big games companies.

On the matter of these bold start-ups, outside of the US you often hear it said games development entrepreneurs are too afraid to fail. Do you feel there should be more open-mindedness to failure as part of the course to success?
I don't think that's truly the case. I think there are people willing to take chances, and I come across them all the time; these interesting start-ups. Because of the size of this business there are now more start-ups than ever, so there's plenty we don't hear about that do fail. What's great about it is that those people, especially if they go through it early enough, go on to do interesting things.

Free-to-play, as seen in games like BioWare Mythic's Warhammer Online: Wrath of Heroes, encourages quality of games design, says Evans

> ***“The impressive start-ups today are the ones that are totally bootstrapping it. Those guys that are really living it.”***
> Eugene Evans, BioWare Mythic

And you have to face it, that possibility of failure, but you have to stick with it. Often people, and especially students and so on, ask me how you keep up in a business that is changing so fast. The answer is something I use an analogy for. When you're at the station, when the train goes by it seems to move incredibly fast. But when you're on the train the countryside rolls past very slowly. So it's simple; stay on the train. Keep doing what you're doing.

Speaking at the Develop Conference, you suggested that free-to-play means games have to be better quality. Could you elaborate on that?
It's very simple. With the arrival of download and Facebook and so on, you can try a game before you pay and find out if it is for you or not. There's no need to be financially invested in a game at the start. You invest your time, and perhaps that's more precious to people today than almost anything.

People are committing their time to play a game, and they only have so much disposable income and time. If one of these games isn't good, and doesn't draw somebody in quickly, the players are just going to move on to the next one.

I'm a big believer in free. For me that really started when I saw the retailer Blockbuster begin renting out games. I'm convinced that probably put some studios out of business. There was a lot of people that complained about game rentals at the time, but they were often the people who's product was just bad.

There was this new era where people could play before they paid. Even though I was in the business I thought it was great; I would go and rent ten games in a night and give them all a try, to separate the junk from the good titles. Think about what that did for the quality of the games.

So you're a firm believer that free-to-play is good for the industry?
Oh yes. It's incredibly good for the games business. The other thing about free-to-play is the global aspect. There's a lot of challenges for retail, in pricing your product around the world in some markets. The GDP in the West, and the fact that there's a certain income level has meant products are priced to match a certain income level and European and US lifestyles. That doesn't work everywhere.

When you hear about – for example – how much it costs to import games in Brazil, no

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With Warhammer Online: Wrath of Heroes BioWare Mythic was able to experiement with a distinct free-to-play model

wonder free-to-play has become so big. It really has democratised the price of gaming. Consumers can now vote with their wallet. If they like it, they can spend on it. If they don't like it, us developers didn't do a good enough job making the game.

Mythic obviously applied a fairly distinct payment model to its MMO *Warhammer Online: Wrath of Heroes*. What have you learned from that?

Firstly, we're continuing to learn from it everyday, and that's what studios should do. We're still in open-beta with the game. EA has had a portfolio of free-to-play games for a couple of years now. *Battlefield Heroes* did it two or three years back. There's also *Need for Speed World Online*. Through our Asian offices, with things like *FIFA Online* in Korea, we've had a massive success.

The experience out there really began to drive home to a lot of EA executives what a phenomenal opportunity it offers.

As for what we did at Mythic was, we often got asked if we were planning to take *Warhammer* to free-to-play. There's obviously been a number of MMOs to do that, and we decided to take a different route. We think there's an audience that likes our subscription game, and they want to be able to play it the way it is. We didn't want to damage that, but there are aspects of the game that we thought would make a great free-to-play game. The thing with an MMO is it's actually so many different kinds of games. People who play *World of Warcraft* – and there are millions of them – all play it in very different ways. Some will like crafting, while others will prefer forming guilds, some play solo.

We have our instances and areas of our game that we know very well, and we can carve those out. If you want to be successful at free-to-play, your game has to be fast to download, quick to get into the game and really easy to learn. That considered, we decided to carve out scenarios and shrink the game down so we get it to a one-gig download. There are countries out there that still charge for the internet by the hour, and we want them to be able to get into the game quickly.

In that scenario if they don't like it, they don't have to pay. If they do like it it's really interesting to see how much they are willing to spend. It's a developer's job to make a free-to-play game something a player wants to get into and finds compelling. That's why free-to-play encourages quality.

At the Develop Conference you also spoke positively about being acquired by EA. There's been a flurry of comment from various studios about how acquisition can grant an independence all of its own. Is that something you recognise?

Studios within EA are pitching upwards the product that they want to make. In many ways that's no different from a start-up pitching to VCs. I actually think that EA recoginises that they need to innovate, there's a lot of competition, and there's a lot of new platforms and models for games.

We're fortunate that we have a strong management team who are all gamers at heart, and when they hear about something fun and interesting that will work in the market, they show meanful support for it. I've seen that happen both in the US and European studios.

We obviously still have our big blockbusters and our big sports titles every year, but at the same time, what we're also looking for is the things we've done with *Wrath of Heroes*, *Battlefield*, and mobile. Those come from people at EA wanting to try something different. EA has the resources to help that happen.

True indies can be ultimately beholden to investors and publisher contracts. EA, with its size, can take bold steps and take big risks.

> ***"Free-to-play really has democratised the price of gaming. Consumers can now vote with their wallet."***
>
> Eugene Evans, BioWare Mythic

Finally, you also talked about a vision of the future where what you called 'porting of communities' will be vital for hardware manufactures and developers.

Well – look at a game like *Ultima Online*. There are people who I have met that have been playing *Ultima Online* for 15 years consistently. These games draw the most amazing communities together to play, and the players commit to those communities almost more than the game.

In a similar way there are people who are committed to platforms' communities in almost the same way.

There will be people who won't be interested in a new platform if their friends don't have it yet. Those people want to play with their friends, so it will be vital to migrate those communities carefully. That will be key to the success of these new platforms.

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THIS MONTH: The Develop Awards, including the infamous opening video **World of Tanks** Dynamixyz's move on games development

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» Develop 100 returns

Studios large and small featured

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DEVELOP'S RANKING of the world's most successful games developers is back.

Now live in the App Store, the 2012 edition of the *Develop 100* features a list of the top 100 developers in the world based on UK retail revenues generated by their games in 2011.

It is available only for iPad, and costs just £4.99. That includes profiles on each of the 100 studios, sales statistics, plus background facts and analysis.

GfK Chart-Track data has been used to formulate the list. Chart-Track has the most accurate chart reporting tools on the planet, monitoring the sale of almost every game and peripheral sold in the UK.

This year EA Canada comes out on top, beating the likes of Nintendo and Infinity Ward.

Some of the most famous studios in the world have also secured a place in the listing – including giants like Epic Games, Bethesda, Valve, and Naughty Dog. But also featured are independents otherwise left out of the limelight, such as Black Lantern and Land Ho.

Is your team amongst them? Download the book to find out. *The Develop 100* is available within the *Develop* magazine app for iPad.

The Develop 100 is sponsored by gamecity:Hamburg.

» Profile: Frontier Developments

Develop 100 Position: 67 | **Founded:** 1994 | **Location:** Cambridge, UK
UK retail revenue in 2011: £4.71 million | **www.frontier.co.uk**

THOSE ALLERGIC to cutesy critters should look away now.

In 2011, Frontier racked up sales of over £4.7 million for their Kinect-powered family games.

Kinect Disneyland Adventures offered mini-games inspired by theme park rides, while *Kinectimals* provided a flock of docile virtual pets.

Founded by industry luminary and Raspberry Pi co-creator David Braben, Frontier's headcount now stands at over 200. For years the studio has been working away on two of its most ambitious titles; namely *The Outsider* and the eagerly awaited *Elite 4*.

The former has been put on hold, but Braben says it is still due to see release. Perhaps it will arrive when we least expect – or not at all.

The latter? That is anybody's guess.

» HOW EA CANADA TRIUMPHED

EA'S CANADIAN superstudio took the top spot in our 2012 developer ranking.

Founded in 1983 as Distinctive Software, the outfit was acquired by EA in 1991. EA Canada has been No.1 in the *Develop 100* a total of three times. This year it beat Sledgehammer Games and Infinity Ward to the top spot, as their co-development of *Modern Warfare 3* meant revenues were split between the two for our listing – despite the fact that *MW3* out-grossed *FIFA 12*.

EA Canada is a worthy No.1. As well as still being a creator of best-selling boxed games, it has made massive strides in shifting digital content. *FIFA* add-on *Ultimate Team*, on console, adds a collectible card game element to the disc-based game. This year, the studio opted to put out its seasonal *UEFA 2012* as DLC for *FIFA 12*, and not as a standalone disc.

» WHERE DID UBISOFT RANK?

SEVERAL UBISOFT studio's starred in this year's Develop 100. Ubisoft's 2,000-strong mega-studio in Montreal was the publisher's most profitable branch, generating £49.63m in UK retail revenue thanks to its *Assassin's Creed* series, earning it a number six position.

This was followed closely behind by Ubisoft's French studios, which earned much of their money from the hit *Just Dance* series. Ubisoft Casablanca and Reflections rounded up the publisher's presence in the Develop 100.

Much of the glory, however, can be shared with other studios in the Ubisoft empire, although we don't split the revenue here given the way these teams are treated like outsourcing partners.

In fact, that global scale has become a point of pride. Montreal was revelaed as leading development on 2012's *Assassin's Creed III*, but Ubisoft has given credit to six other of its teams.

» WHO WAS NUMBER 100?

FOUNDED IN 1996 Monster Games made £2 million in UK retail revenue during 2011 from its Nintendo-published 3DS title *Pilotwings Resort*, securing it the Develop 100's final spot.

The lesson to learn? Never underestimate the strength of revivals. *Pilotwings* is a lesser-known Nintendo IP, but you wouldn't have thought so given the excitement surrounding its 3DS return.

Monster is an experienced racing developer with a rostrum of *NASCAR* titles to its name.

Want to know more? The *Develop 100* is now available for £4.99 within the *Develop Magazine* app for iPad. Download the *Develop Magazine* app now through the iTunes store.

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//COMMENT: BUSINESS

Nintendo's social experiment

by **Rick Gibson**, Games Investor Consulting

Shoulders back. Firm grip. This is not the most relaxing way to view Miiverse on a daily basis.

WHEN NINTENDO announced it was adding a massively multiplayer frontend to the Wii U called the Miiverse, some began calling it a 'social network'. You can find friends and chat with them, post tips in-game and mill around new titles with hundreds of other Miis from your neck of the woods. The online strategy for Wii U – and to a lesser extent for 3DS – is a surprising turnaround for a company that's historically been super-cautious about online. This month, I'll look at whether Miiverse really is a social network as some have painted it, and where the current plans might take Nintendo.

Facebook's success is largely founded on its open communications channels, which offer multiple, accessible ways for people to find and notify each other about what's happening. In contrast, Wii U players can post comments in-game and directly into the Wara-wara forum that's the Wii U's home screen. Nintendo appear to be backtracking on Iwata-san's comment about a 30-minute turnaround for moderators to check posts. Moderation of this type adds unacceptably high friction to basic communication, turning posting into Post-its.

If Nintendo removes any messaging delay in favour of blacklist-style chat functionality, this buries a giant landmine in the form of inadequate child protection. Nintendo may think itself legally in the clear by forcing responsibility on parents to control their children's access to Miiverse, but any Habbo-style grooming scandal could deliver a devastating blow to Nintendo as a family-friendly brand.

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An equally important aspect of social networks is how companies utilise them. Facebook builds these channels so companies can find audiences, enable low-friction access to instantly accessible games and harness the social graph for viral marketing. Nintendo's ground-breaking plan for dual online/retail releases may threaten Nintendo's retail relationships, but at least Miiverse will feature downloadable versions of its first-party titles and probably a fair few third-party ones too.

But 'play this game with me now' will still be high-friction for first-time players due to bandwidth constraints and the currently absent hard drive. But if Nintendo maintains its stance that publishers cannot use Miiverse to recruit players (for fear of damaging user trust), publishers will struggle to get users to recruit friends using gameplay incentives. This will have to change as Nintendo learns the ropes.

> ***"Miiverse is clearly no Facebook on Wii U, but it offers more hope to casual developers interested in experimenting with commercial models."***

What about new commercial models? Intriguingly, senior management at Nintendo tell us that the company will accept new commercial models from publishers, with even freemium microtransaction games theoretically on the cards for the first time. Designing the backend and payment system for free-to-play microtransactions could put Nintendo on a strategic par with Sony and in territory where Microsoft fears to tread. Whether Nintendo implements it correctly is another question, and third-party developer input – something Nintendo still struggles with – will be key to ensure it works. But its sudden openness to new commercial models is no clearer indicator of Nintendo's dismay at its poor financial results, nor of the wave of freemium optimism sweeping Japanese games companies.

Nintendo has woken up to DeNA and Gree, who are each on track to generate over a quarter of Nintendo's $8bn sales this year, as well as listening to its closest publishing partners, some of whom – EA and Capcom especially – are starting to make a mint from freemium. Even if Nintendo rejects the sale of virtual goods in Miiverse as found in Sony's Home, full freemium titles on Wii U could be ground-breaking for Nintendo's audience.

A SOCIAL CLIMBER

True social networks have almost no barriers to entry and this is surely the final nail in the coffin of the theory that Miiverse is a social network. As for Miiverse being accessible through other devices post-launch, this has been over-reported. Nintendo tells us this means no more than a browser view of Miiverse notification feeds, not Miiverse apps on iPhone or PC, and certainly not Nintendo games on other platforms.

This is a much more cautious approach than Sony's confusing mobile offering that blurs the line between the closed PlayStation Network and the open world of mobiles. Unsurprisingly, and just like its competitors, Nintendo isn't planning on integrating with properly open social networks either. Despite acknowledging the existence of other devices used by its audience, Nintendo has simply taken a baby step into the open.

So Miiverse is clearly no Facebook on Wii U. It lacks the communications and virality of a true social network, appears at this stage utterly half-baked on child protection, but it offers more hope to casual developers interested in experimenting with commercial models than Microsoft's platform. Miiverse will still be a fundamentally closed network, and given Nintendo's focus on experienced gamers, will be overrun from launch into the foreseeable future by fanboys, which may permanently influence its tone.

All told, Miiverse looks less like a social network and more like a Nintendo virtual world. Nintendo's taking a bold step by making 'social' functionality core to its next generation but a steep learning curve awaits.

Rick Gibson is a director at Games Investor Consulting, which provides commercial check-ups, strategy and data to games, media and finance companies.
www.gamesinvestor.com

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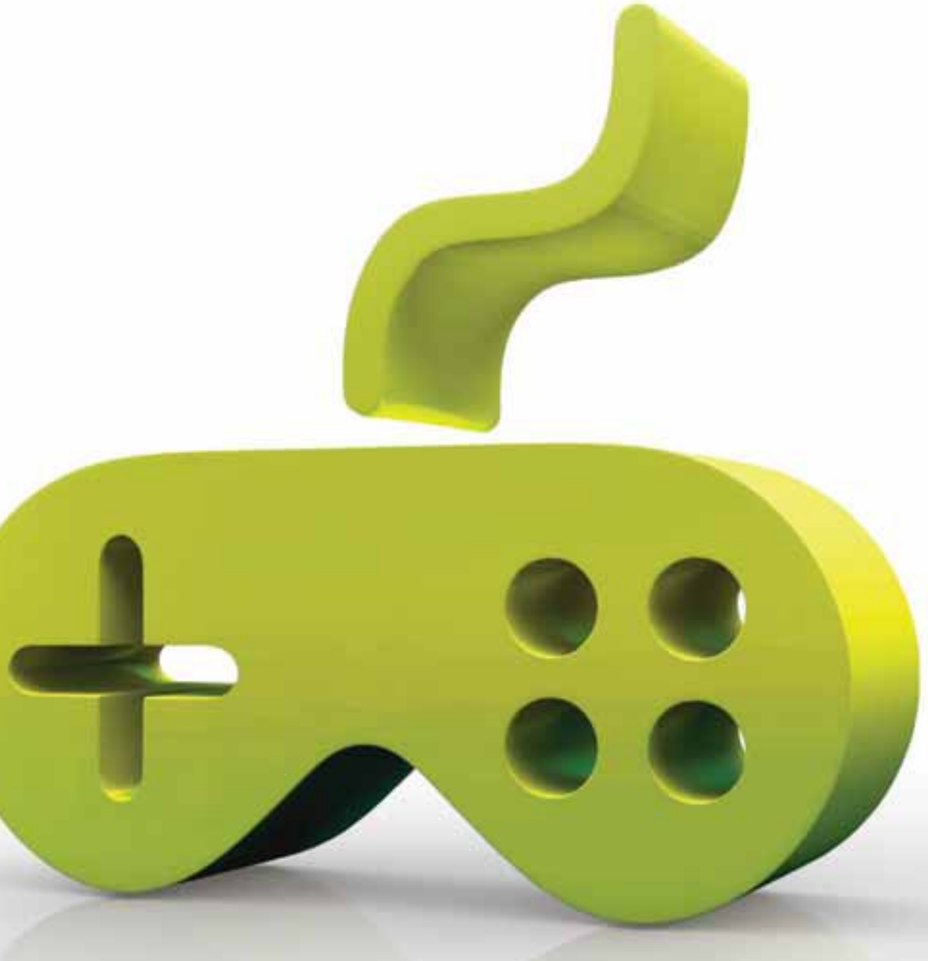

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*Sources: Arab Media Outlook 2010, Media on the Move 2009, A.T. Kearney. Introduction to Gaming. Michael Moore. Screen Digest. IDC.

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//COMMENT: TRENDS

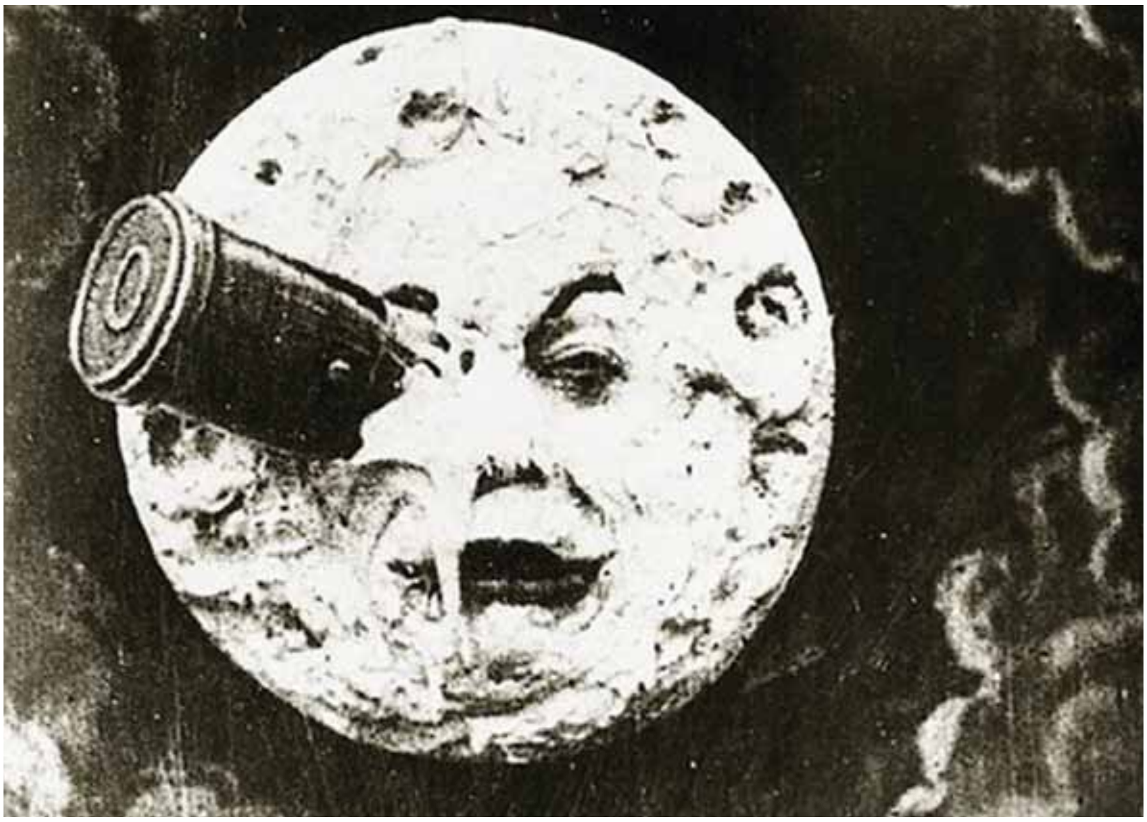
There's a game out there for everyone

by **Ana Kronschnabl,** Fluffy Logic

ABOUT THREE YEARS ago, I went to a talk by thatgamecompany's Jenova Chen about his approach to games development. At the time he was talking specifically about the game *Flower*, released in 2009

It was a fascinating talk and chimed with a lot of the ideas I had also been having about the subject matter of games, such as; why are the concerns of games and their central characters so very similar and inevitably, therefore, so limited? Bringing an awareness of other industries and the diversity of the markets they cater for shines a light on quite how limited in scope and range of emotions computer games tend to encompass.

So, why are the settings and scenarios in games so very similar? For example, why do most big, triple-A games involve large weaponry, large men/women/robots and a rather gritty post-apocalyptic setting? I am obviously exaggerating somewhat, but still, if we leave mobile development to one side for a moment, there is a definite overtone of gritty realism melded with over-the-top weaponry.



If games need new genres, then perhaps developers would do well to take inspiration from filmmaker Georges Méliès, whose movie Trip to the Moon did much to create sci-fi

IN THE BEGINNING

It strikes me that returning to the very beginning of computer games may shed some light on some of the reasons for this.

As most of us involved in development know, whilst narratives may be the icing on the cake, like hard silvery balls that capture the imagination of the player, it is in fact the game mechanic that underpins whether the game will work as a fun gaming experience or not. Many game designs start with the designer or publishers saying: 'so, this is going to be a first-person shooter', or 'this title will be a side-scrolling puzzle game'.

Whilst being useful in helping everyone concerned understand what type of game they are making, it is also a rather reductive approach, limiting the possibilities. It is also highly unlikely to produce something genuinely new. The reasons are clear; if a genre is successful, there is a known audience for that type of game and – with budgets becoming increasingly Hollywood-sized – that is a comfort in an unpredictable world.

Maybe this is the reason many people still do not want to engage with games. Again, the mobile market is different. Mobile titles are sitting in a genuinely innovative and interesting space at the moment. They are taking chances in terms of style: you would struggle to describe a typical mobile game as the form is currently so varied.

A CRITICAL CONCERN

So, where does this leave the chance for innovative content, styles and even new, unforeseen genres within the traditional games arena? We have had a deluge of new devices, both for new consoles and more established ones. From add-ons for the Wii to the AR experience of Kinect, many released to seriously damning criticism: see reviews for *Steel Batallion* on Kinect for further information.

Whilst we now have a huge range of games that exploit the obvious aspects of the iteration, such as sword fighting, dancing and mech steering, we haven't seen any truly innovative releases that use these devices within a totally new gaming context.

> ***"In a world that accommodates Boyzone alongside Bowie, Placido Domingo and Blondie, there must be room for more difference in games."***

The truth is that innovation is not easy. Inventing new genres and interactions as well as delivering a guaranteed return is doubly hard. It means that the larger publishers and hardware developers need to be investing in completely different types of games.

But the risk isn't necessarily as great as they would have you believe. The audience for games has plenty of room to grow. I know many people who never have – and maybe never will – play console games, because they really don't see that they offer them anything.

THE SPICE OF LIFE

To return to my initial point. Film, art, poetry, music; all deliver different experiences for a wide range of users, or people as I call them.

It is an expensive undertaking, but the rewards are great. There will be failures but there will also be very rewarding successes.

So why do two of our main console manufacturers still develop games for a core audience of fourteen-to-thirty-five-year-old men? A forty year old man recently confessed to me that he never played console games – he generally played games designed for his 12-year-old niece on his mobile. He couldn't see himself in camos, and loves beauty salons.

So, in a world that accommodates Boyzone alongside Bowie, Placido Domingo and Blondie, there must be room for more difference in games. Let's allow players to wander. What would happen if there were no pick-ups, hit points or even enemies? Jenova Chen's *Journey* is a fine example of this.

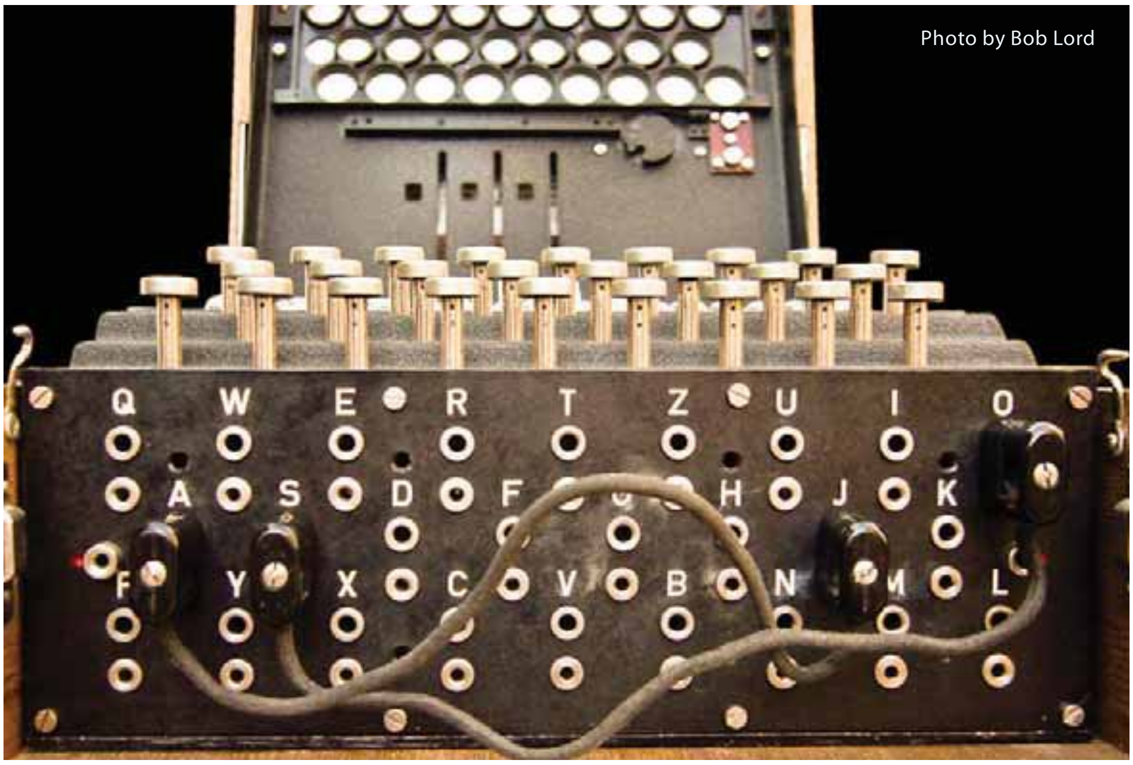
I am not saying that we throw the baby out with the bath water. But who knows what could be lurking in the bubbles? If Méliès had never dreamed of the moon we may never have had sci-fi. That would be dreadful.

Ana Kronschnabl is CEO and creative director at games and digital content studio Fluffy Logic, which has produced titles for a wealth of platforms across console, mobile and online. Fluffy Logic is currently at work on social game *UrZoo*. **www.fluffylogic.net**

//COMMENT: MOBILE

Games are machines; You are an engineer

by **Will Luton**, Mobile Pie



The human mind likes to understand and organise patterns, as with the famed Enigma Machine, meaning mysteries in games can offer players a sense of satisfcation upon discovery

WHEN I WAS a young boy I believed that people were capable of incredible feats if only they had enough determination. I was partially right. Whilst you need the will and time to make good games, both are useless without a method to apply them.

With each game I design I have developed a specific way of thinking about and making them, which helps me work quicker and better. They're a little abstract, but I'll try my damnedest to make them make sense.

COGS IN THE MACHINE

Forget about thinking of games like film or TV – this is the biggest mistake in design. They are most like machines, with the single purpose of making humans want to use them. They function via the use of rules, which can be considered as cogs.

As a games designer I see myself as an engineer – a digital Fred Dibnah. My first job is to plan out what my limitations are – how the machine should work and which cogs to use and how to place them.

At first they'll seem to fit, but as I build and bring my machine to action, the cogs begin to affect one another, introducing unforeseen complexity. The machine may be inefficient or even jam, with the whole thing failing.

I can use other games as reference designs, either from direct comparison or a lifetime of studying and building them, to minimise the amount of problems I create.

However, I never get the design right the first time, because the interactions are so complex. The further I go from existing references and their proven solutions, the more likely I am to run into problems.

So I advocate that it is better to build small sections, test, fix and then append them. Designing everything upfront, in a GDD say, is only worthwhile if you understand that you will have to throw most of it away because you are wrong, otherwise you'll build something broken.

> ***"Designing everything upfront, in a GDD say, is only worthwhile if you understand that you will have to throw most of it away."***

ENIGMA MACHINES

The human mind likes to understand and organise patterns; a phenomena known as the gestalt effect.

You can teach someone to play chess in under an hour, yet they could spend a lifetime learning its strategies. Seeking to understand a strategy and then feeling validated when successfully using it is what makes chess so compelling. That there is infinite strategy is what makes it addictive.

Similarly, good stories introduce unknowns, get you speculating, then surprise you with a resolution. Your brain uses this resolution to retrospectively organise the events and motivations of characters, giving you a nice buzz. Bad stories, of course, are predictable.

All games need some kind of enigma, because understanding them gives a sense satisfaction. Although you may not find out what it is first, when you discover it, bring it to the fore and make it better.

THE CORE OF THE MACHINE

Alongside enigmas, every game has a core loop. These are repeatable sequences of effort and reward – do something, get something. In chess it is jump a piece, or capture a piece. You will be familiar with shoot an alien, get some points and kill these zombies, get some story.

At the point in which you feel you have a pretty solid concept start to ask yourself what this core loop is. These are the first cogs you will fix in place. If you struggle to understand your core loop, so will your audience. Likewise if the effort seems too much or the reward isn't enticing, the game will unlikely be compelling, so change it.

PEOPLE VERSUS MACHINES

There are very few auteurs in games. This is because their construction is complex and requires multiple people with specific skills and outlooks. The designer may envision and describe the game, but the specifics of how they are built is in the hands of many.

The design process can be broken by too many people, not enough people, and ego. In my experience the best number is two – one person has ownership and the second sanity checks the first to ensure things aren't missed or won't work. If the second person is technical they bring a unique perspective.

A COMPELLING CONCLUSION

One designer once told me games should make people feel cool. I disagree. Games can tackle real issues and be thought provoking or saddening. Yet what they always have to be is compelling. If they aren't, they have no player and are totally useless.

Building a game's core loop and setting their rewards and mysteries is how to keep a player engaged. In good games these are obvious.

Yet they are complex, so considering them as constructed of smaller, interconnected parts is the best way to understand and create them. A designer must accept that they are too big to comprehend on paper so they can never be right every time.

Will Luton is creative director at the award-winning boutique studio Mobile Pie. The studio creates its own IP and work on licenses, with a partner list that includes the BBC, Orange and Hewlett-Packard. Follow Will on Twitter at @will_luton, or visit **www.mobilepie.com**

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//COMMENT: STUDIO MANAGEMENT

Mum's the word

Al Bickham, The Creative Assembly

Being open and playable during Beta is helping indie game Project Zomboid flourish, but for triple-A titles secrecy remains essential

I RECALL SOME years back when I worked for a publisher; someone on the QA team took a screenshot of the PS3 trophy list for our upcoming game, and posted it online. He was out the door within the hour.

The poor fellow probably just wanted a little recognition that he was working on a super-cool project.

That's understandable, but it's hard to fathom how, steeped in the heavy atmosphere of non-disclosure at every publisher or big developer, he came to the conclusion that this would be an okay thing to do. As opposed to, say, a critical breach of his contractual obligations.

High secrecy isn't so much the domain of the indies – at least not to the extent of the large studios with big-publisher backing. Without the ammo-train of global marketing support, indies have to work harder on discoverability, and the kind of open, play-during-Beta approach that's making gems like The Indie Stone's *Project Zomboid* a growing success appears to be a healthy symptom of an evolving business model.

Al Bickham is The Creative Assembly's studio communications manager. A former journalist, he stands in this month for *Develop's* regular CA columnist Tim Heaton. **www.creative-assembly.co.uk**

THE WALLS HAVE EARS

It's a different story entirely for triple-A. When content differentiation is your stock-in-trade, your game's unit price is higher and you're competing over limited market-share, secrecy becomes more critical.

You can plug every perceived hole, NDA the world and its dog, and thread yourself into ribbons as you noodle around the web looking for leaks. But leaks happen, and with so many people in your organisation working to prevent them, they generally happen for reasons you hadn't anticipated.

Over the course of a big development cycle, other factors stride into play. Marketing and PR exist in elastic tension with dev; the marketeers want game-facts set in stone so they can execute a smooth campaign that rises in intensity over time, and creates a level of predictability. Thus, creating a planned rollout of features over time; which means limiting the amount of information delivered at any given beat of the campaign.

The flipside is that, through the course of the development cycle, features change; prototyping throws up red flags for features not worth iterating upon. Iteration highlights faults with features that looked great on paper or at prototype stage. Some features work, but just don't add meaningfully to the game, so they don't make the cut; some change well beyond their original conception. Your game evolves, the feature-set alters, and you don't want to scream about ambitious features early on that may not materialise in the final game. We all know how that pans out. So what happens? You limit the information delivered publically at every given beat of the campaign.

It's infuriating. You want to shout it from the rooftops: 'look at my awesome game! Look what it does! Look at our wimple tech!'. You announce your game, and there's this palpable exhalation of relief across the studio, followed by a happy buzz. But the dev and marketing costs for getting a game to market prohibit full transparency; it's just too risky to shout about your more detailed plans early on. It annoys journalists and developers alike, but that's the way it has to be.

> ***"Dev and marketing costs for getting a game to market prohibit full transparency; it's just too risky to shout about your more detailed plans early on."***

A MATTER OF SCALE

To the indie dev team, this may sound like our diamond shoes are too tight, but it's indicative of the different scales our industry operates at, and the close consumer-connection we have that's so rare in other markets. If one indie's communication is confused, patchy, or features are dropped or otherwise left unfulfilled, then the response from fans is more likely to be sympathetic.

If there's 100 of you, suddenly you're crooks and cheats.

Finding out where the thin line between sympathetic fan and outraged consumer lies will happen to everyone sooner or later, and the proliferation of Kickstarter projects is likely to narrow the search very quickly.

Indies have a special relationship with the gaming public which armours them against many of the public perception problems corporate developers face, but there are lessons in information management to be learnt from the bigger companies. Whatever size you are, thinking a little more about what you release, when, and with whom, is some of the simplest and most effective public relations work you can do. And it can even head off customer perception problems in the future which, if you're living and dying by your limited exposure, can end up being far more vital in the long run.

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THE MONTH AHEAD

A look at what August has in store for the industry and beyond

AUGUST 9TH
International Day of the World's Indigenous People.
AKA day most likely to cause political outrage. Cheers, UN.

AUGUST 13TH
International Left-Handers Day.
Left-handers on the issues of living in a right-handed world.

AUGUST 15TH
Korean Liberation Day.
Celebrating independence from Japan. Flag image not selected by any sporting body.

AUGUST 23RD
International Day for the Remembrance of the Slave Trade and its Abolition.
Bit of a mouthful.

AUGUST 12TH
Glorious Twelfth.
Such a pleasant name for the start of the season of shooting wild animals.

AUGUST 13TH
GDC Europe.
Industry luminaries and professionals come together to discuss and share ideas.

AUGUST 17TH
New Super Mario Bros 2.
Nintendo pretends it has more money than ever by basing a game around coins.

AUGUST 30TH
International Day of the Disappeared.
Raising awareness for those imprisoned in poor positions.

AUGUST 12TH
International Youth Day.
As Wikipedia says, this even 'draws attention to an endangered demographic'.

AUGUST 14TH
Airport Control Tower.
Watch pilots having lots of fun as you stare at screens and buttons.

AUGUST 21ST
Darksiders 2.
Follow Death as he tries to clear his brother's name in THQ's *Zelda*-like adventure.

AUGUST 24TH
Transformers: Fall of Cybertron.
Play as the heroic Autobots – and lose everytime.

DEVELOP DIARY

Your complete games development event calendar for the months ahead

EDINBURGH INTERACTIVE
August 9th to 10th
Edinburgh Interactive
www.edinburghinteractive.co.uk

Now in its tenth year, the show will again explore the social, creative and cultural elements of the video games sector. *Develop*, *MCV* and Nintendo are confirmed as event partners.

Edinburgh Interactive exists to explore and celebrate the social, creative and cultural building blocks of interactive entertainment. The event does this with both a conference and a series of public events focusing on the skills and creativity of those working in the industry, and the strong tradition of Scottish innovation.

AUGUST 2012

EDINBURGH INTERACTIVE 12
August 9th to 10th
Edinburgh, UK
www.edinburghinteractive.co.uk

GDC EUROPE
August 13th to 15th
Cologne, Germany
www.gdceurope.com

GAMESCOM
August 15th to 19th
Cologne, Germany
www.gamescom-cologne.com

SERIOUS PLAY CONFERENCE
August 21st to 23rd
Washington, USA
www.seriousplayconference.com

DARE PROTOPLAY
August 10th to 12th
Dundee, UK
www.daretobedigital.com

SEPTEMBER 2012

CLOUD GAMING USA 2012
September 11th to 12th
San Francisco, USA
www.cgconfusa.com

DEVELOP QUIZ
September 19th
London, UK
www.develop-online.net

TOKYO GAME SHOW
September 20th to 23rd
Tokyo, Japan
tgs.cesa.or.jp/english

OCTOBER 2012

APPS WORLD EUOPE
October 2nd to 3rd
London, UK
www.apps-world.net/europe

MCV / XBOX 360 PUB QUIZ
October 4th
London, UK
MCVuk.com

BRAZIL GAME SHOW
October 11th to 14th
São Paulo, Brazil
www.brasilgameshow.com.br

GAMES MEDIA AWARDS 2012
October 18th
London, UK
www.mcvuk.com/events

GAMECITY 7
October 20th to 27th
Nottingham, UK
www.gamecity.org

NOVEMBER 2012

LONDON GAMES CONFERENCE 2012
November 21st
London, UK
www.londongamesconference.com

BRAINS EDEN. GAMING FESTIVAL.

The Cambridge development community would like to congratulate Breathing Bits on their winning entry to this year's Brains Eden 48 hour Games Jam.

BRAINS
EDEN.
2012.
GAMING
FESTIVAL.

Breathing Bits are a group of students from NHTV University of Applied Science in Breda Holland, pictured (l-r) Robert Van Duursen (Artist), Alex Camilleri (Designer), Michel Paulissen (Programmer), Mark Scheurwater (Programmer), Andy Sandham (Accompanying Lecturer) and Nils Ruisch (Artist).

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BETA

DEVELOPMENT FEATURES, INTERVIEWS, ESSAYS & MORE

David Perry's career profiled

p38

And the winners are...

A round-up of all the victors from the Develop Industry Excellence Awards 2012, p26-35

The Creative Assembly at 25

p45

Wargaming draws its battle lines

p52

The Swedish games dev hub

p55

Credit where it’s due

Last month the global games industry’s finest descended on the coastal city of Brighton for the Develop Industry Excellence Awards. Those in attendance were there to celebrate the best in the sector across games, tools, studios, services and IPs. Here we bring you the winners, and their reactions to be recognised as the best of the best

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Comedian and ceremony host Terry Alderton

GAMES INDUSTRY PIONEERS of all shapes and sizes where recognised at the Develop Industry Excellence Awards 2012 last month.

A gala ceremony in the UK seaside city of Brighton was attended by over 550 people from 150 companies, where they saw the likes of *Battlefield 3*, *Dear Esther* and *World of Tanks* handed highly-coveted awards.

The Develop Industry Excellence Awards acknowledge creative, commercial and technical achievement. Taking place at the Hilton Metropole Hotel, the event was the most attended night in the ceremony’s decade-long history.

Moshi Monsters creator Mind Candy took home one of the top prizes, the Grand Prix, which recognised a blistering period of growth as the children’s online game firm burst into the mainstream.

A total of seven key prizes went to new, nimble British companies: Mode 7 Games took home the New IP prize for *Frozen Synapse*, Facebook games pioneer Bossa was handed the New Studio accolade, and Thechineseroom took Micro Studio and Use of Narrative for *Dear Esther*.

David Perry with his mother (second-from-left) and family, who attended the awards to see him honoured

DEVELOPMENT LEGEND: **DAVID PERRY**

"Develop does an incredible job supporting the games industry and it was very humbling to receive an award when the entire room is filled with people I respect so much."

David Perry

THE JUDGING PANEL

Over 70 games industry experts voted on this year's awards, and *Develop* is very grateful for all of their support and help in making the Develop Industry Awards 2012 another great success.

Aaron Lee (Develop),
Alex Ward (Criterion Games),
Andy Emery (Side),
Andy Robson (Testology),
Antony Matchett (Wave Studios)
Ben Parfitt (MCV)
Brian Kearney (RAD Game Tools)
Chloe Giusti (VMC Game Labs)
Chris Doran (Geomerics)
Chris Lee (Hooplo)
Daniel Darocha (Toxic Games)
Craig Chapple (Develop)
Darren Jobling (Eutechnyx)
David Braben (Frontier)
David Rose (We R Interactive)
Donna Orlowski (Bossa)
Gareth Edmondson (Thumbstar)
Ivan Davies (Catalyst)
Michael French (Develop and MCV)
Miles Jacobson (Sports Interactive)
James Batchelor (MCV)
Jayson Hilchie (Nova Scotia Business)
Karl Hilton (Crytek UK)
Keith Russell (Babel),
Keith Webb (Tanukii Studios)
Liz Prince (Amiqus)
Matt Southern (Evolution Studios)
Melina Papadopoulos (Hero Engine)
Mick Morris (Audiomotion)
Natalie Griffiths (Blitz)
Nick Baynes (Big Bit)
Nick Button-Brown (Crytek)
Patrick O'Luaniagh (nDreams)
Paul Smith (Strawdog Studios)
Paul Taylor (Mode 7 Games)
Pete Samuels (Supermassive Games)
Phil Stuart (Preloaded)
Philip Reisberger (Bigpoint/AppFlag)
Rhodri Broadbent (Dakko Dakko)
Richard Scott (Axis Animation)
Robert Troughton (Pitbull Studios)
Rob Ashtiani (Atomhawk Design)
Simon Oliver (Hand Circus)
Tim Heaton (The Creative Assembly)
Tim Rogers (Eurocom)
Trevor Williams (Playground Games)
Will Freeman (Develop)
Will Luton (Mobile Pie)

Some judges have asked to remain anonymous – we would also like to thank them for their input.

CONGRATULATIONS TO ALL THE WINNERS AT THIS YEAR'S DEVELOP AWARDS.

To continue honouring the brightest talent in the industry,
we wanted to share some of the work created by our independent
CryDev community – potential award winners of tomorrow.

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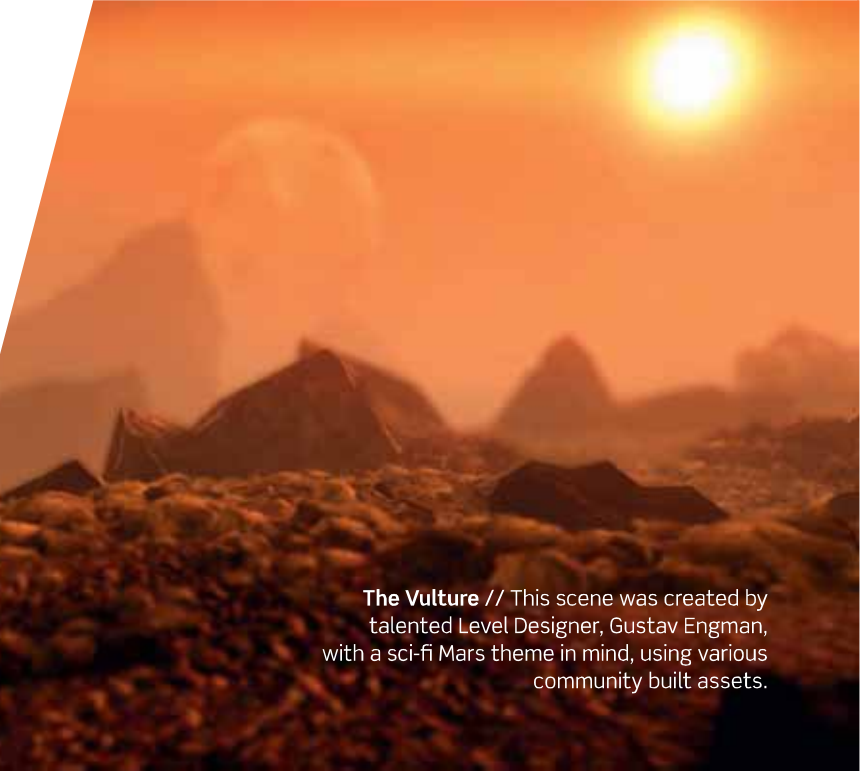
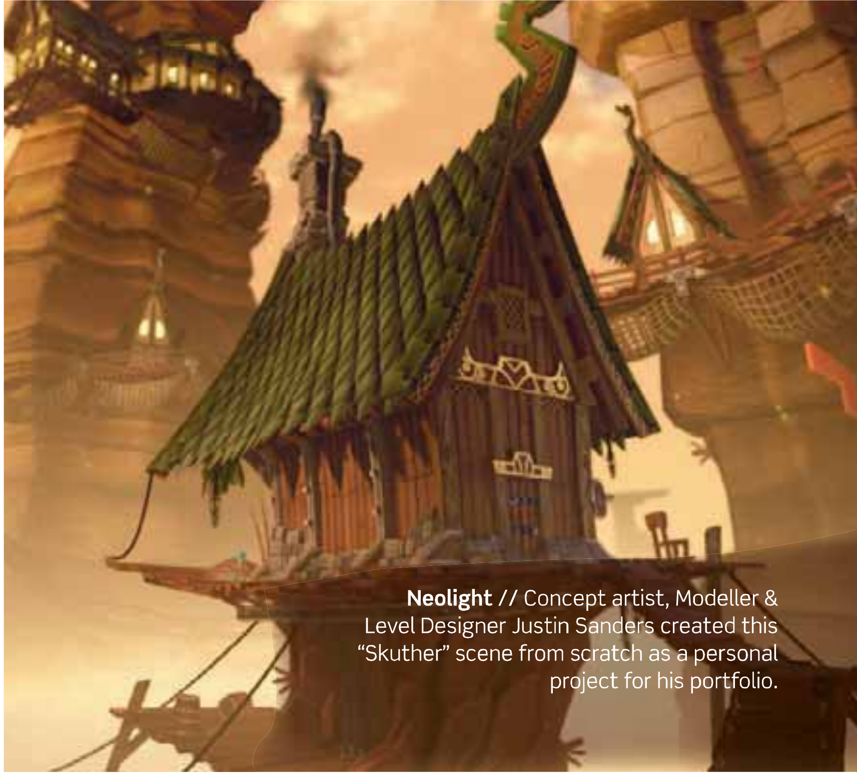


The Vulture // This scene was created by talented Level Designer, Gustav Engman, with a sci-fi Mars theme in mind, using various community built assets.



Neolight // Concept artist, Modeller & Level Designer Justin Sanders created this “Skuther” scene from scratch as a personal project for his portfolio.

Stallownage // This richly lit hangar scene was inspired by Tom Clancy’s HAWX, all assets custom created by the author, Dave Nolan.

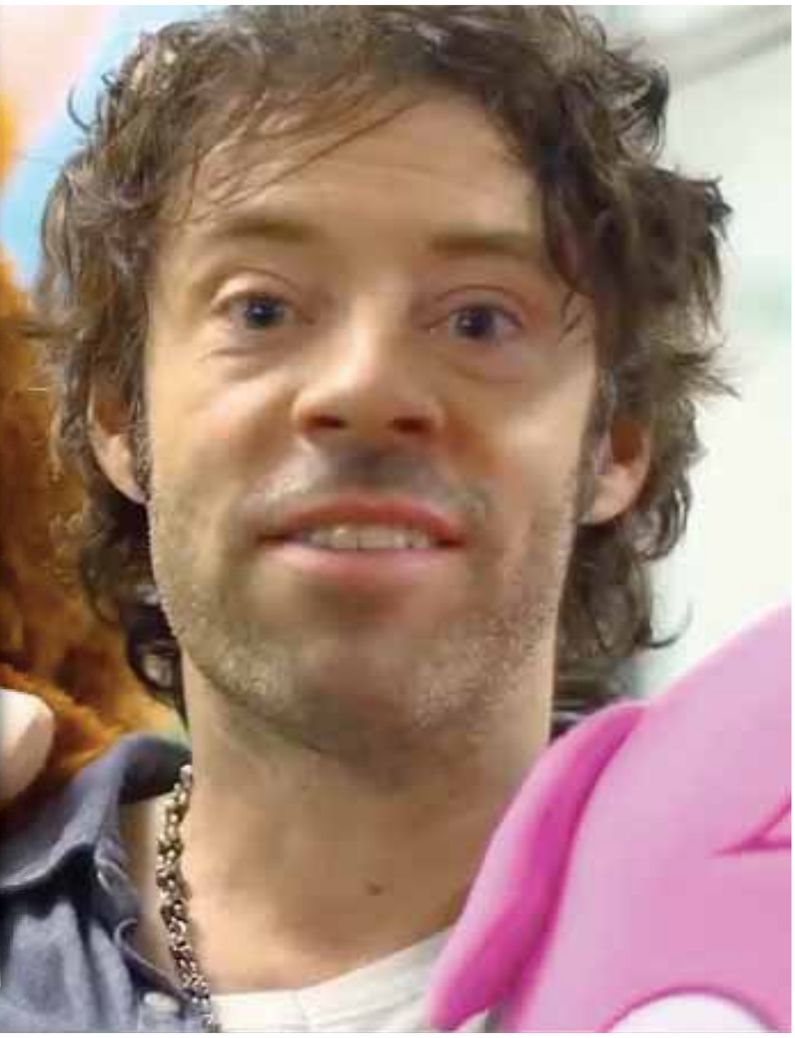
Themodman101 // “Hearts of the Forest” was created by Ryan as a Valentine’s day gift for his girlfriend using all custom vegetation assets.

iSqueeze // This meticulously detailed landscape brings the forest to life in this work in progress level dubbed “Myelitis”.

Titanic LITD // This no-compromise recreation of the Titanic is being created by a team of eager developers, working with CryENGINE 3 to showcase their talents.

velop
LLENCE AWARDS 2012

Mind Candy's Darran Garnham accepting the studio's Grand Prix award



Michael Acton Smith, who founded Mind Candy and pushed Moshi Monsters into the mainstream

GRAND PRIX: **MIND CANDY**

"It was only a year ago we won our first ever games industry award at the Develop Awards and now, 12 months later, we've won the Grand Prix. It's pretty mind-boggling. Thank you to everyone that voted for us, thank you to the amazing Mind Candy team, and thanks to the millions of kids around the world that play Moshi Monsters."

Michael Acton Smith, CEO, Creative Director and Founder, Mind Candy
(speaking at the awards via a pre-recorded video)

Nova Scotia, Canada congratulates all of the Develop finalisits.

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JAYSON HILCHIE
Director, Information & Communications Technology
Nova Scotia Business Inc
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CANADA

CREATIVITY CATEGORY

NEW IP | USE OF A LICENCE | **USE OF NARRATIVE** | VISUAL ARTS | **AUDIO ACCOMPLISHMENT** | PUBLISHING HERO

NEW IP

FROZEN SYNAPSE (MODE 7 GAMES)

"This award means a lot to us as it was voted for by development studios and the rest of the industry. That's really important to Mode 7. Thank you all so much."

Paul Taylor, Joint MD,
Mode 7 Games

USE OF A LICENCE

BATMAN: ARKHAM CITY (ROCKSTEADY STUDIOS)

"Thank you. This is important to us. Use of a Licence means a lot, because we put a lot of effort into respecting the Batman brand, and we really do love the character."

Sefton Hill, Game Director and
Co-founder, Rocksteady Studios

USE OF NARRATIVE

DEAR ESTHER (THECHINESEROOM)

"This really is a total surprise to us. It's amazing for us to win this award. Thank you so much. We really weren't expecting this."

Dan Pinchbeck, Creative Director,
Thechineseroom

VISUAL ARTS

RAYMAN ORIGINS (UBISOFT MONTPELLIER)

"I would like to say thank you to all the team at Montpellier. This award is for every one of them."

Stefano Petrullo, PR Manager,
Ubisoft

AUDIO ACCOMPLISHMENT

BATTLEFIELD 3 (EA DICE)

"Thank you so much. This award, along with our millions of players, is a testament to the accomplishment of the Battlefield 3 audio team."

Carl Vikram,
EA DICE

PUBLISHING HERO

STEAM (VALVE)

"This is an incredible honour. I'd like to thank the judges, all of our users, and the whole team at Valve who made this possible."

Anna Sweet, Business Development,
Valve

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Develop Awards 2012

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TECHNOLOGY AND SERVICES CATEGORY

TECHNICAL INNOVATION | ONLINE | **VISUAL OUTSOURCER** | AUDIO OUTSOURCER | **SERVICES** | TOOLS | **ENGINE** | RECRUITMENT

TECHNICAL INNOVATION

GEOMERICS

"I'd like to thank the team and those we work with, especially Chris Doran, our founder, and the team at EA Dice."

Gary Lewis, CEO,
Geomerics

USE OF ONLINE

WARGAMING.NET

"On behalf of our CEO Victor and the whole team, thank you. Our home city of Minsk can be a hero once again."

Al King, Global Brand Manager,
Wargaming.net

VISUAL OUTSOURCER

CUBIC MOTION

"This is amazing. Thank you all very much, especially everyone who has worked with us over the last few years."

Dr. Steve Caulkin, Director of Research,
Cubic Motion

AUDIO OUTSOURCER

SIDE

"I'd like to thank our partners and peers. This means a lot because you voted for us."

Benjamin Ryalls,
Business Development and Client
Relations Manager, Side

SERVICES

VMC GAME LABS

"This award is all about our teams, who all work very hard for VMC Game Labs. Receiving this Develop Award is really an honour."

Ben Wibberley, director of games, VMC
Game Labs

TOOLS PROVIDER

EPIC GAMES

"Wow. What can I say? This is a great award, and at a great awards show. This is so amazing. Thank you everyone."

Mike Gamble, EU Territory Manager,
Epic Games

ENGINE

UNITY

"This really is extraordinary. I'd like to thank all of our community of users, and of course, everybody who works at Unity."

Andy Brammall, Regional Sales
Director, Unity Technologies

RECRUITMENT

AMIQUS

"I'd like to say thank you to every one of our staff, and all of our clients. This award really does mean a lot to everyone at Amiqus."

Liz Prince, Business Head,
Amiqus

STUDIOS CATEGORY

NEW STUDIO | MICRO STUDIO | **BUSINESS DEVELOPMENT** | INDEPENDENT STUDIO | **IN-HOUSE STUDIO**

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NEW STUDIO

BOSSA STUDIOS

"It's great to be recognised like this. We're like a huge bedroom, where we only let cool people in and allow cool games to come out."

Henrique Olifiers, Co-founder and 'Gamer in Chief', Bossa Studios

MICRO STUDIO

THECHINESEROOM

"Thank you so much, we're very new, we're very small and we've had an amazing year already."

Jessica Curry, Co-Director and Composer, Thechineseroom

BUSINESS DEVELOPMENT

NATURALMOTION GAMES

"We're thrilled to collect this award. Everyone has worked insanely hard these last 12 months and we have a lot to bring in the future, so this is really appreciated."

Barclay Deeming, VP Games, NaturalMotion Games

INDEPENDENT STUDIO

CCP

"This is incredible. Thank you so much to everyone on our team. They have worked hard for this."

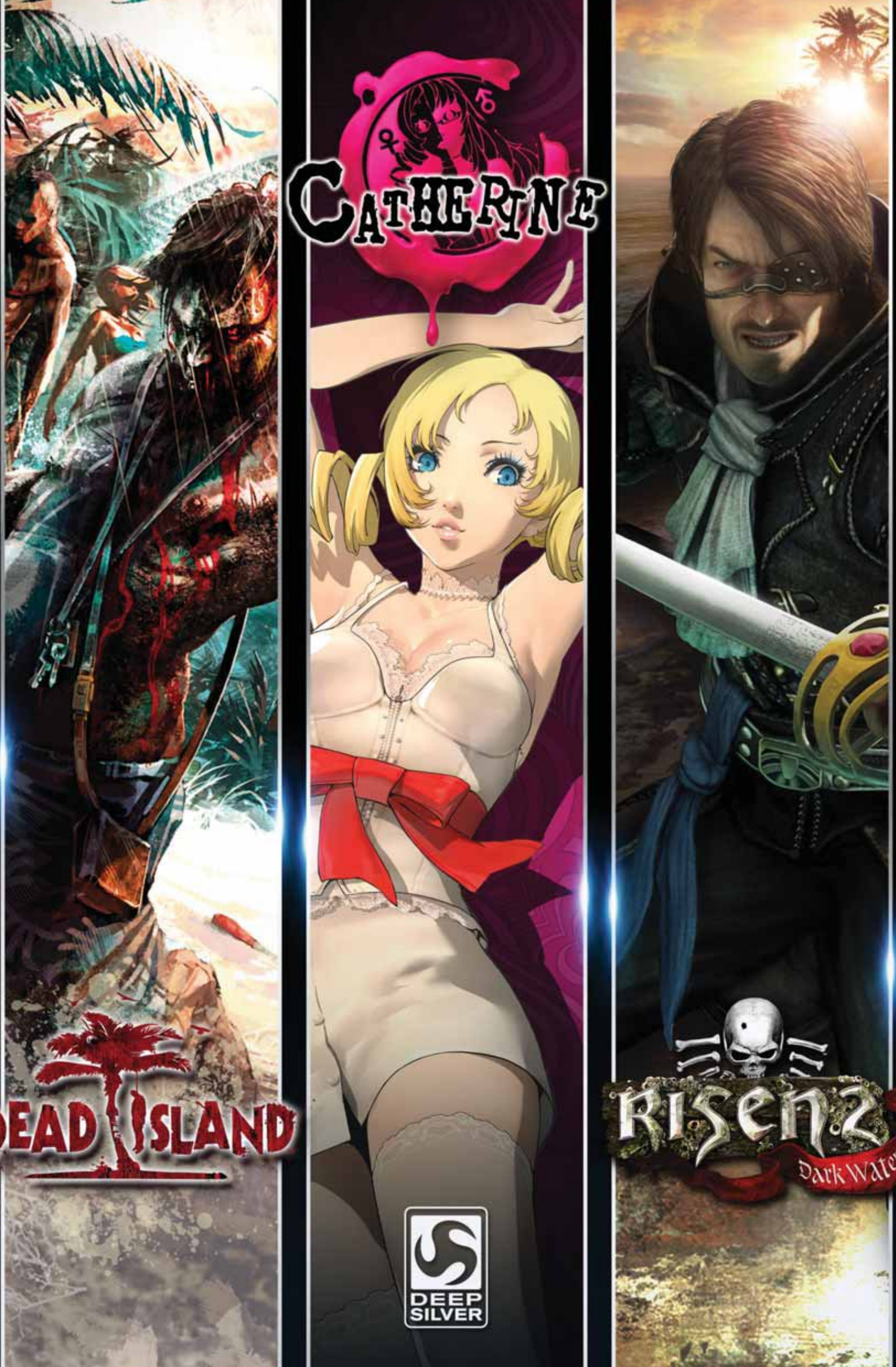
Björn Ingvarsson, Engineering Manager, CCP Games

IN-HOUSE STUDIO

THE CREATIVE ASSEMBLY

"Scooping the best in-house studio award is fantastic. We're 25 years old this year, which is a pretty rare achievement, and it's great to have those years of hard work recognised."

Tim Heaton, Studio Director, The Creative Assembly


CATHERINE
DEAD ISLAND
RISEN 2
Dark Waters
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2012 Develop Awards

Take it from the top

Last month the famously tall industry luminary David Perry took to the stage at the Develop Awards to be crowned Development Legend. **Will Freeman** asks the man himself what it takes to become one of the best

David Perry was awarded with the Development Legend accolade for his long-standing services to the industry, with one of his first major successes being the iconic Earthworm Jim (top right)

CONSIDERING HIS LIFETIME of achievement, David Perry is an astoundingly modest man.

He may have founded Shiny Entertainment, sold the company twice, created *Earthworm Jim*, worked with the Wachowski Brothers, spearheaded cloud gaming and eventually sold Gaikai to Sony for an impressive $380 milion, but Perry remains every bit an ordinary man, in persona at least.

He is certainly an absolute professional, and a prolific industry entrepreneur, but he is also still the man infatuated by games. In fact, spend time in his company and you begin to sense that he is a man also infatuated by life. An hour with Perry will see not just games discussed, but everything from philosophical musings on the power of memories, to why we should all do everything we can't. More on that later.

BANKING ON GAMES

Perry also exudes youthful energy; the very kind that motivated him as a teenager when, purely for the love of it, he began writing games programs to send to magazines. This was back before tapes were abundant or affordable, meaning the most common way to share games was to publish printed pages of code for other hobbyists to copy out into their computers. It was a primitive form of distribution, but one on which this industry was built.

Perry's very first games got published, and to his surprise, a cheque for £450 was sent to him by the magazine publisher. Perry's problem? Barely into his mid-teens, he didn't yet have a bank account. His first pay packet might have been hugely encouraging, but it was utterly worthless to this young visionary.

A few years earlier, Perry had in fact set his heart on a career in sports, but quickly he found himself instead drawn to computers and their power to create.

"It really was just that they had a computer room in our school and they wouldn't let us in," reveals Perry. "That was all it took; just that one locked door. I really wanted to know what was in there. Eventually, when I was a bit older, they finally let me in. The first time I sat down to a computer there was a ZX81 and maybe an Acorn Atom, and I just remember sitting down, and like we all did, typing '10 PRINT "Hello, What is your name"' and all that. And right then I saw that if I could learn to work with these things, I could do just about anything. It's an amazing feeling when you realise you are in charge of a machine like that."

Perry's memory of that infamous BASIC coding line is nothing unusual, and many across the games space will remember the first time they saw their name reeling down the screen of a BASIC-interpreter. But while others simply grinned in delight, Perry's immediate vision was of learning abilities that stretched to near infinity. Was it already clear that day that he was a games developer headed for greatness?

Perry goes on to compare mastering coding with learning to use an instrument. "Once you know the notes, you realise you

can play any song in the world, or anything you can imagine," he says, his enthusiasm seeming unhalted by concepts like talent or skill. In Perry's mind anyone can do anything given the right tools. It's a refreshingly optimistic perspective, and one he seems sure can be applied universally.

THE FULL SPECTRUM

Shortly after making his way into that schoolroom, while still in education, Perry started to submit the aforementioned code to a photocopied magazine that went by the name of *The National ZX80/81 Users Club*. It was 1982, and the young developer was beginning to get a taste of making his hobby a profession. Within a few months, Perry's games were also appearing in the magazine publisher's books, and by 1984 he was the sole author of *Astounding Arcade Games for your Spectrum*.

In the meantime, the cassette-based industry was gathering momentum, and would eventually make volumes of printed code largely redundant.

Next up for Perry came a move to making games at a studio, in a transition he admits he found very difficult. He describes the process as something of a reality check. The boy in his bedroom with dreams of infinite possibility was suddenly just one of many programmers, and his first wage was just £3,500 a year; a small amount even back in the 1980s.

Then employed at Mikro-Gen, Perry even admits to something of a crisis of confidence, until he was given the opportunity to port a game named *Pyjamarama*, which let him see inside another developer's code. It was a moment of revelation for Perry, and sent him back on track to emerge as a young star of games development.

"I was surrounded by people who were really good at Mikro-Gen," offers Perry. "Those guys were too good to bullshit, so I had to learn to be as good as them."

Soon he had done just that, and would turn his hand to making full games of his own conception.

RISE AND SHINY

After a number of roles at the UK's earliest studios, Perry found himself working at Virgin on titles including *Global Gladiators* and *Cool Spot*. Such was the quality of the latter that publisher Sega came back to Perry an offered him a chance to do the highly acclaimed *Aladdin* movie tie-in game. When *Aladdin* sold in huge numbers, the young developer began to ponder why he and his colleagues were working so hard to make a lot of money for somebody else.

> ***"Selling Shiny was the biggest mistake I've made in my career, because I'd thought it was a one-focus shop."***
>
> David Perry, Gaikai

Being such a proactive force, the moment Perry received his Green Card for US residency he set up Shiny Entertainment. It was October 1993, and his career was about to enter a new era of achievement.

"We didn't really know what we were actually going to do," admits Perry of the developer's early days. "There was a long period of waiting and meetings and talking to people about their properties. We were even considering *Knightrider*. It was at the time we were considering what it was Shiny should make. We knew whatever we chose we could make something of, but we needed that inspiration."

As it turned out Shiny was looking to hire a Dreamworks animator by the name of

THE LUCK OF THE IRISH

Perry on luck's relation to success

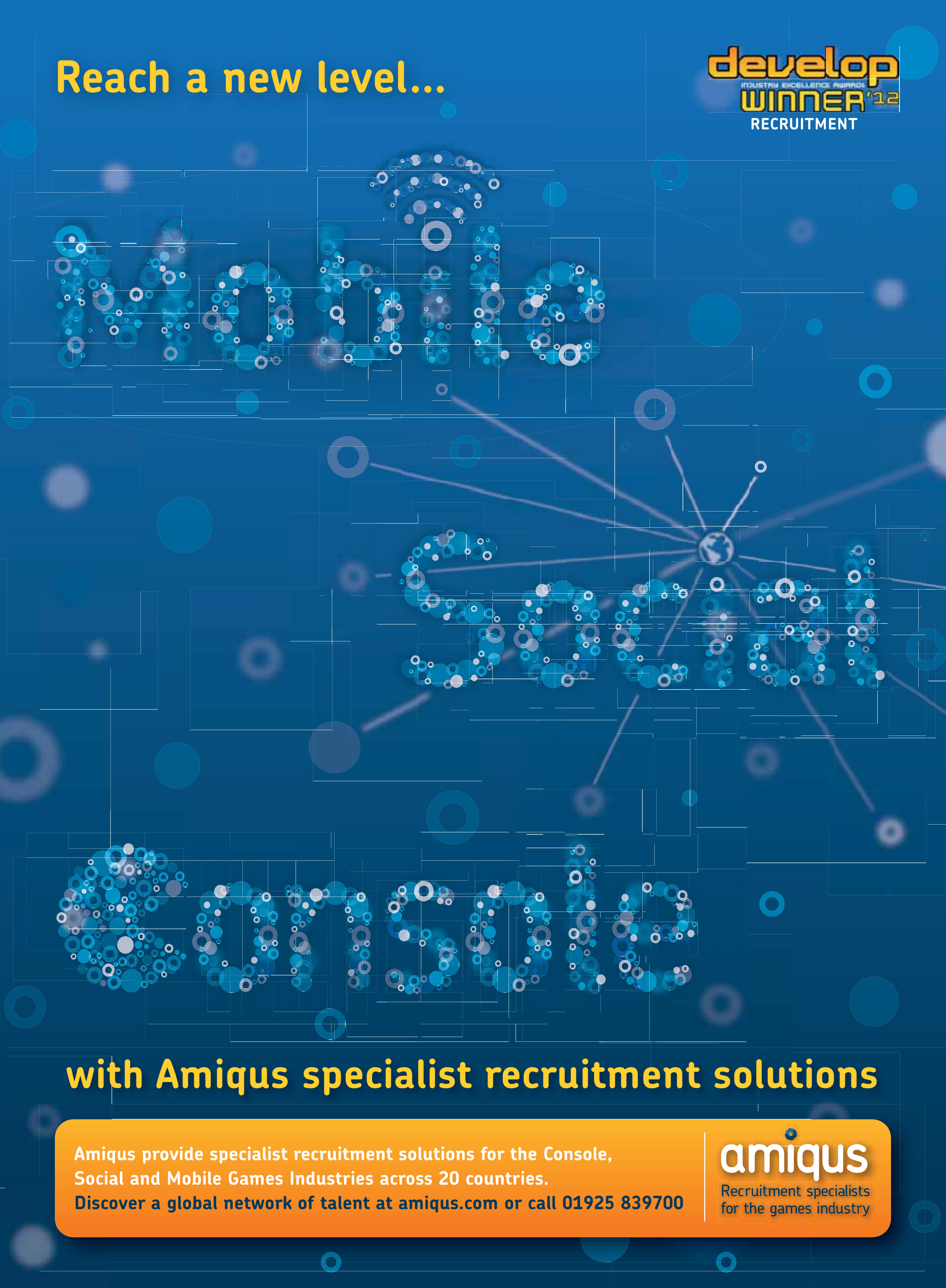
IRISHMAN DAVID PERRY is an extremely talented games developer, but he's not afraid to admit he's been lucky.

And what's more, he's sure anybody can do much to infuse their own industry career with the kind of fortune that can propel you to greatness.

"Luck is part of success. There's a degree of being in the right time at the right place to any career," he admits. "I was lucky to be in the industry when everything was starting off, but the bottom line is, it's about your passion for what you're doing. If you're enjoying games, then you have to start thinking about all games; not just what you enjoy. Start playing every kind of game, and start putting yourself into every situation in the industry you can. My mother used to say 'if you're not in you can't win'.

"You have to take a chance to give yourself a chance. You have to put yourself into an environment where something interesting could happen, and them something interesting might happen. Put yourself ahead of everyone else out there, and you might just get the luck. Not taking a risk is more risky than just taking one."

In Perry's world, luck is something you simply have to put yourself in the path of. Many developers today would do well to adopt that perspective, as it has clearly worked for this Development Legend.



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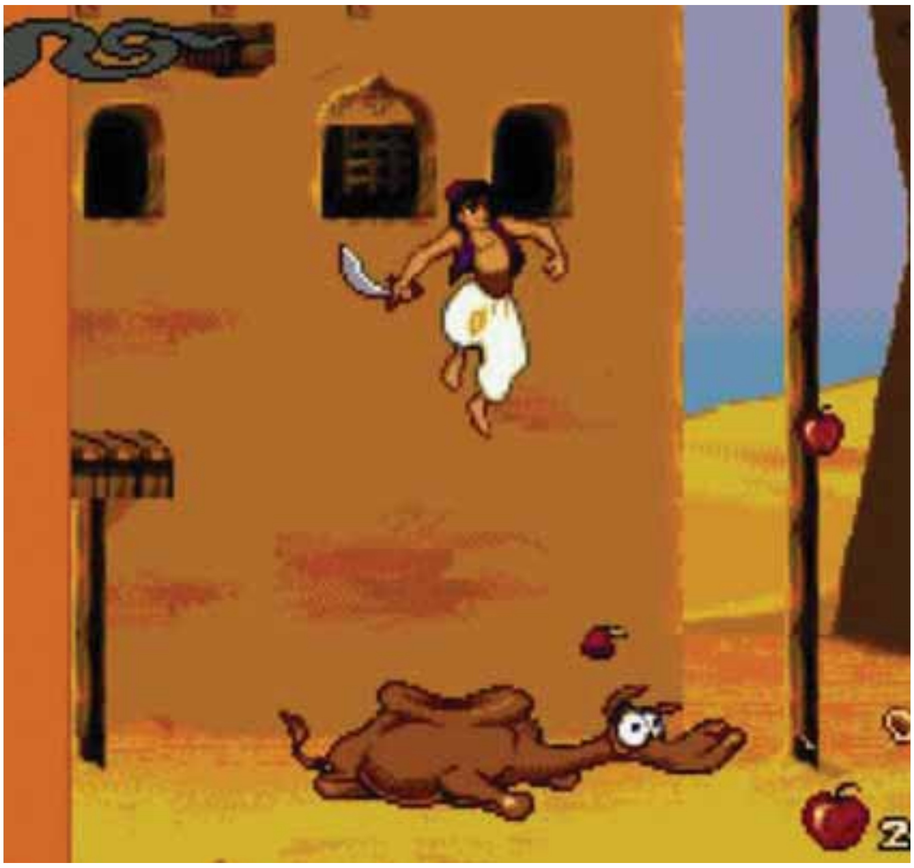

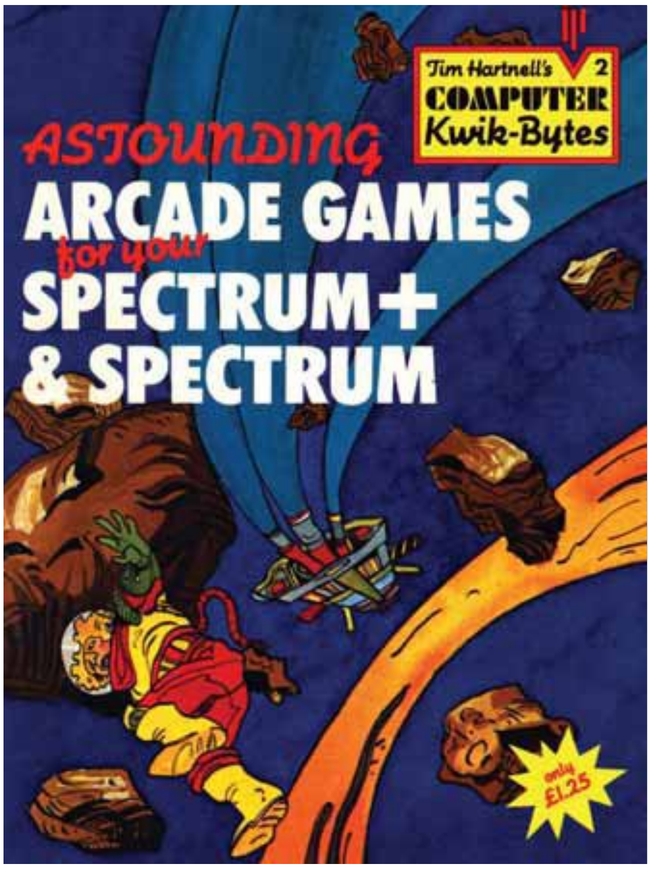

David Perry has worked in the in numerous sectors of the industry for 30 years, such as developing hit movie-tin Aladdin (left) and working as the sole author of Astounding Arcade Games for your Specturm (above)

Doug TenNapel. When TenNapel came to the office to demonstrate his talent and abilities, he made a sketch.

Suddenly Shiny had its inspiration. *Earthworm Jim* was born.

THE NEXT DIMENSION

After some wrangling between TenNapel and Perry over Earthworm Jim's physical prowess – or lack of – the famous character was fleshed out, and the game that put Shiny on the map made.

Rooted firmly in the 2D world, *Earthworm Jim* was comfortable ground for Perry, who had begun worrying that the inevitable dawn of 3D gaming would knock Shiny sideways, and ultimately out of the business.

It was then Perry sold Shiny – for the first time – to Interplay.

"That was the biggest mistake I've made in my career, because I'd thought Shiny was a one-focus shop. I thought we just did hand-drawn pencil animation. Little did I know that my team would be so adaptable to switch to 3D. In the end we did *MDK*, which became very important in 3D video games."

Continuing to work under Interplay's ownership, Perry and his team did indeed prove themselves in 3D. *MDK*, their first title in the third dimension, introduced the now ubiquitous, genre-spanning 'sniper mode', and became the de facto benchmark test in magazines for analysing numerous different graphics cards.

Next, *MDK* became a standard bundle-game shipped with every one of Apple's iconic new iMacs, which taught Perry an important lesson about the power of licensing.

Within next to no time, 40-to-50 hardware and peripheral companies had secured *MDK* licensing deals.

BEYOND GAMES DESIGN

In the next five years, with the *Enter the Matrix* video game in development and a need for a huge marketing effort to promote the title, after an intensely complex business deal Perry sold Shiny to Infogrames for a substantial $47 million. An industry in-joke continues to this day that Perry is the only man to sell the same studio twice in a row.

Shortly after Infogrames changed its name to Atari, and Perry embraced a new era of his career. He had tried to bring to life a game design of his own conception named *Plague*. Forced to "tear the heart out of the game" to meet with budget demands, Perry decided it was time to try something new.

> **"You have to keep trying things that aren't exactly your specialty. It's how you make yourself better at what you do."**
>
> David Perry, Gaikai

"You have to keep trying things that aren't exactly what you feel are your specialty," says Perry. "It's how you make yourself better at what you do. In a way you should try everything in the industry, and especially the stuff that's not your thing."

Learning to do what you can't, says Perry, is how you get better at what you can do.

With Shiny sold, it was now the mid-2000s, and experimentation and a move away from designing games would begin to define Perry's role in the industry. He would serve as a consultant – largely at Acclaim – and became fascinated with research into the new dominion of free-to-play, long before it was as common as it is today.

Ever ahead of industry trends, in this time Perry also launched an early crowdfunding platform named GameInvestors, which served as a professional network for linking those with money to hand and specialists within development.

"We made great progress there," confirms Perry. "But I ended up focusing on Gaikai at that time. It was a time when I was concentrating on multiple things, because I didn't know what was going to catch on, but I still feel there's a need for GameInvestors. I never did quite ship that project, but I'm still sure it has huge potential."

In fact, Perry is even confident GameInvestors addressed problems crowdfunding giant Kickstarter is yet to overcome, such as a milestone system to protect investors from unscrupulous studios or individuals that see the platform as a place to take money without delivering any kind of product. GamesInvestors had a built-in solution whereby investors would only need to part with cash as certain milestones were met. And don't worry; Perry is already onto the CEO of Kickstarter to pass on his input. He is a man who acts on seemingly every idea he has.

HEAD IN THE CLOUD

Eventually, Perry's ongoing investigation of free-to-play lead him to cloud gaming.

"Free-to-play and Gaikai go hand-in-hand," states Perry. "Once you go deep into how free-to-play works, it's about creating the best user acquisition funnel that lets the most people play your game. Every single company on Earth that does free-to-play

Always in the back row, David Perry with industry legends including Will Wright, Tim Schafer and Brenda Garno

wonders every morning: 'how do I get more people to play my game?'"

At this point Perry had been consulting with Acclaim, which he says had its heart set on finding out how to run games engines in the cloud. Perry, ever an independent thinker, was convinced running whole games in the cloud was the future.

"I remember the exact moment I realised how important the cloud was," continues Perry. "It was 2008, and I was asked to speak at DICE 2009. I'd done a talk earlier at GDC about stuff that seemed obvious to me about games development. Things like how mice would go away, and how people should start designing for track pads, and that talk went down really well, because at the time it was reasonably edgy stuff. That motivated me to think harder about talking about the future, and what else would start to really matter. And that's where I started to realise the importance of the cloud for gaming."

> ***In a weird way getting this Development Legend award inspires me. It makes me think about the fact I'm not done.***
>
> David Perry, Gaikai

In the audience of Perry's DICE talk sat two cloud engineers, who approached Perry after his speech, and, ultimately, Gaikai was born.

And now, as we all know, Sony is the proud new owner of Gaikai. The Japanese giant's plans for the platform remain a mystery, and Perry is not yet ready to divulge what role the cloud will play in the future of PlayStation – if indeed the two will work together.

In fact, due to competition and speculation before the Sony deal, Perry had to remain fairly quiet about the details of his ambitions with the cloud. Gaikai – along with similar systems – certainly attracted doubters, but Perry's confidence in what he believed was the future of gaming saw him through.

"We always knew what we were doing," says Perry with a smile.

And there you have it, the story of a Development Legend, and a template for how any aspiring developer could fill a lifetime with achievement.

What is striking about Perry is not just his enthusiasm for his chosen industry, but his optimism for what others can do. He is a man who appears to believe anybody can take the chances the dev sector throws at them and turn themself into an influential figure.

And he is not done yet.

"In a weird way getting this Development Legend award inspires me," concludes Perry. "It makes me think about the fact that I'm not done, and yet I've received this. It seriously means a lot to me that the award has been voted for by my friends and peers, but what's fun about getting it is that it shows people care about the work I've put in, and that makes me feel really good about how much left I've got to do."

What Perry does after Sony and Gaikai's wok together is anyone's guess, but one thing is for sure.

By now he has a bank account. Should any more cheques come Perry's way, he will be in a position to cash them.

SEEING THE FUTURE

Perry shares his tips on predicting the games industry's future

FROM WORKING ON early 3D titles like *MDK* and serving as a pioneer of free-to-play research, to building a crowdfunding platform and taking cloud gaming to Sony with Gaikai, David Perry has proved himself at having a talent for predicting the future of the games industry.

Even in his early career Perry demonstrated a knack for plucking licensed IP for future titles just before that property exploded; his work on *The Matrix* (*above*) and the *Teenage Mutant Ninja Turtles* game being a case in point.

But, he insists, it's no secret trick or special ability. He has become hugely successful as a seer of all things games development related, and by his logic, any savvy developer can do the same.

"It might be about a bit of luck," says Perry. "But then predicting these things is something you can do very easily, especially with hardware. All you have to do is look at what's annoying you or other people, and what can be done to fix that. When that fixing happens; that's what the future is. It has to happen at some point. Those things automatically become the future, and they are pretty easy to spot."

Perry is suddenly more animated, and offers the analogy of a man lugging around a desktop computer using a homemade handle. The inevitable future emerging from that situation, says Perry, was the laptop.

"We can all do it," he insists. "Next time you watch people just trying to get around problems, you can see the future there. Where the innovation needs to happen is the future."

And there it is. David Perry's secret to success, for all of us to share.

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INDUSTRY EXCELLENCE AWARDS 2012

25 years strong

This month The Creative Assembly celebrates turning a quarter of a century old. **Will Freeman** looks at how adapting to change – and staying the same – has enabled the studio thrive for so long

Studio director Mike Simpson (above) says The Creative Assembly was always willing to try new things and test out new tech. Main image: The CA team today

FEW GAMES DEVELOPMENT studios make it to their 25th anniversary.

There are those in the business – institutions like Nintendo and Sega – that started out long before they were making digital entertainment, and thus have numerous decades behind them.

But The Creative Assembly has never done anything but work with video games, and as such, its quarter of a century of service is quite remarkable.

Today the firm is owned by Sega, employs over 200 staff, and dominates a good chunk of the PC market with its *Total War* RTS series.

But, like so many long-standing studios, The Creative Assembly began with just one man. His name is Tim Ansell, and after two years of professional programming work, he finally opened the doors to The Creative Assembly in 1987.

The first work to come in was less-than-glamorous. Ansell and a small team worked tirelessly porting numerous games from the hugely popular Amiga and ZX Spectrum to the IBM PC compatible DOS platform.

However, despite the fact a fledgling The Creative Assembly was yet to work on original IP, Ansell managed to secure the team some impressive projects, which allowed the young studio to build a solid reputation and foundation for the future.

OUT OF THE SHADOWS

Early titles included ports of MicroStyle's *Stunt Car Racer*, and *Shadow of the Beast* for Psygnosis, where Ansell first met The Creative Assembly's now studio director Mike Simpson.

Simpson remembers those early days as a time when Ansell was undeterred by tough technical challenges – perhaps the reason he found himself attracted to porting – and various new technologies.

"Tim always liked to try new things," offers Simpson. "He ended up porting some games to the Fujitsu FM Towns, which was a Japanese PC, and one of the first devices with a CD-ROM drive.

"Back then the studio wasn't afraid to try new things, and I guess that's a little bit down to Tim. He was quite a techy developer who was picking up stuff and doing new things all the time. Things kind of happened by accident more than by design, and porting work is what we found ourselves doing."

Members of the early Creative Assembly team also found themselves producing titles under the EA Sports label, working on some of the first *FIFA* releases, as well games such as *Rugby World Cup*, *Cricket World Cup* and *Australian Football League* games.

The studio's first ever original IP, Total War, is now set to see another new entry into the series, with Total War: Rome II currently in development

According to Simpson, this period of client work, which spanned well into the mid-nineties, served the studio well, teaching the team a great deal of professionalism.

‘We never dared to imagine we might have such a long history,” reflects Simpson. “We just looked at the project we were doing. Things were always under a lot of pressure so there was always pressure to get the projects done and to a decent quality level and overcome whatever problems were in the way. It was fun and we enjoyed it a lot.“

As Simpson joined Ansell and his still small team, The Creative Assembly had become financially robust, and established an impressive portfolio of work. But despite this, the studio was yet to embark on developing its own original IP.

“Tim had got a very stable business going doing the Electronic Arts games, but he was never going to make it big with any of those,” admits Simpson.

“The other thing he was aware of was that if he ever did get any great success with any of them, EA would take it off of them and move it in-house. They'd already done that with *FIFA*. He did the first PC conversion of it and they looked at that and thought ‘we'll move that in-house’.”

TOTAL CONFIDENCE

With Simpson on board and confidence in the studio's ability at an all time high, Ansell made a decision that would change the way the world thought about The Creative Assembly forever. It was time for the team to make its own games.

But what kind of content do you create when your porting experience has covered numerous genres?

As it happens, the early ideas were nothing like *Total War*. The first notion was to build a roleplaying game based on the 16th century Chinese novel *Journey to the West*. The game was to be developed in Singapore, after the country's government began to offer immensely generous financial incentives for those wanting to set up a development house there.

> ***“We never dared to imagine we might have such a long history. We just looked at the project we were doing.”***
>
> Mike Simpson, Studio Director

“When we looked into the Singapore thing, like all things that look too good to be true, it was to good to be true. There were so many strings attached that by the time we'd gone through it in detail, we were just as well-off staying in Horsham and building a team there, and that's what we started to do.”

And so it was that a Singapore-made RPG became a UK-developed RTS by the name of *Shogun: Total War*. Announced in 1999, and released the following year, The Creative Assembly's new game became a sensation within its genre, meeting with vast critical acclaim and a shower of awards, including a BAFTA for the game's soundtrack. The continually popular *Total War* was born, and was here to stay.

Shortly after publishing of The Creative Assembly's games moved from Electronic Arts to Activision, and a wealth of other historical epochs were covered by the RTS series. Ancient Rome, the Middle Ages, the Napoleonic era and others were reimagined by the studio, to much adulation from critics and consumers.

And to this day the console team that began life working on EA Sports games remains strong, having created a number of titles in recent years, including *Total War* spin-offs *Spartan: Total Warrior* and *Viking: Battle for Asgard*.

There's also the long-awaited *Alien* game underway at the studio, and plenty else to keep the workforce busy; including those at the outfit's Australian wing in Queensland.

THE COLLECTIVE ASSEMBLY

Looking back on why The Creative Assembly has thrived, Simpson is convinced that, in spite of all the changes to the studio's output and team size, there is one thing that has never changed.

“We grew very, very gradually,” he says. “I don't think we ever lost that small team mentality. We don't have boards of managers, we don't have lots of producers – we're very, very light on that side. We just get on with making the games. We don't have strict job definitions where somebody will say ‘well

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The Creative Assembly studio directors Tim Heaton (left) and Mike Simpson (right) winning their 2012 Develop Award for In-House Studio

that's not your job, that's my job'. If something needs doing and someone can do it, they get on and do it. That makes the job more interesting I think, and we've managed to keep that small team mindset."

And keeping that state of mind, Simpson suggests, is all about courting a democracy of ideas in the team, where anyone can contribute designs to a project.

"We aspire to that with a passion," he insists. "In practice, you've obviously got to have systems that filter out the bad stuff and let the good stuff bubble to the top. What happens is that teams gradually figure out who the people in the teams are that have the good ideas and the ones that get listened to the most. But everyone can put ideas forward, and they'll be listened to."

Something about the way the team works has obviously impressed the wider industry; so much so that in March 2005, Sega acquired The Creative Assembly *(see panel: To be this good...)*.

HALF THE BATTLE

Today, The Creative Assembly remains focused on the *Total War* series, and continues to develop console games. Yet the studio cannot be accused of resting on its laurels. Despite its RTS series being famed for intricacy and depth, the *Total War* team has managed to take its goliath of PC gaming and squeeze it into the confines of iOS and the operating system's diminutive platforms.

Total War Battles: Shogun, which like its main canon sister-titles has done remarkably well, demonstrates a studio ever-ready to embrace new challenges and technologies. Developing for iPad might not be the same kind of outsider bet that saw Ansell porting games to FM Towns all those years ago, but it is an undertaking of the same kid of spirit.

"Making *Total War Battles* fits into the category of the kind of things we've always wanted to do; those points where we split off sideways and look at other platforms. Until now we just never really had the resources to do it. As we've become more established and got our act together internally more, we started looking around and thinking 'it would be nice to have a go at that.' That's all it takes, and then off we go. That's what we do at The Creative Assembly."

> ***"I don't think we ever lost that small team mentality. We don't have boards of managers, We just get on with making the games."***
>
> Mike Simpson, Studio Director

And there it is; a case of the relaxed go-getting approach of the studio.

Never daunted by new realms, always optimistic, and, by Simpson's account, still the same company it was a quarter of a century ago this very month, The Creative Assembly looks like a studio on a journey that is only just beginning.

TO BE THIS GOOD...

SEGA®

WHEN IT WAS first rumoured that The Creative Assembly was about to become the subject of a publisher acquisition, initial speculation suggested the sometime *Total War* series publisher Activision was set to invest.

Eventually, it was in fact Sega that picked up the developer; a factor current studio director Mike Simpson is sure has served to better his team's output.

"I think for most independent developers, the way you make money in the business isn't by making games; it's by selling your company," offers Simpson. "That's life for indies. Certainly, we'd been at it for long enough for our founder Tim Ansell to feel that it was time for him to do that. So that's what he did."

Simpson does concede that being an in-house dev does change the studio to an extent, but he asserts that it has in essence remained the same.

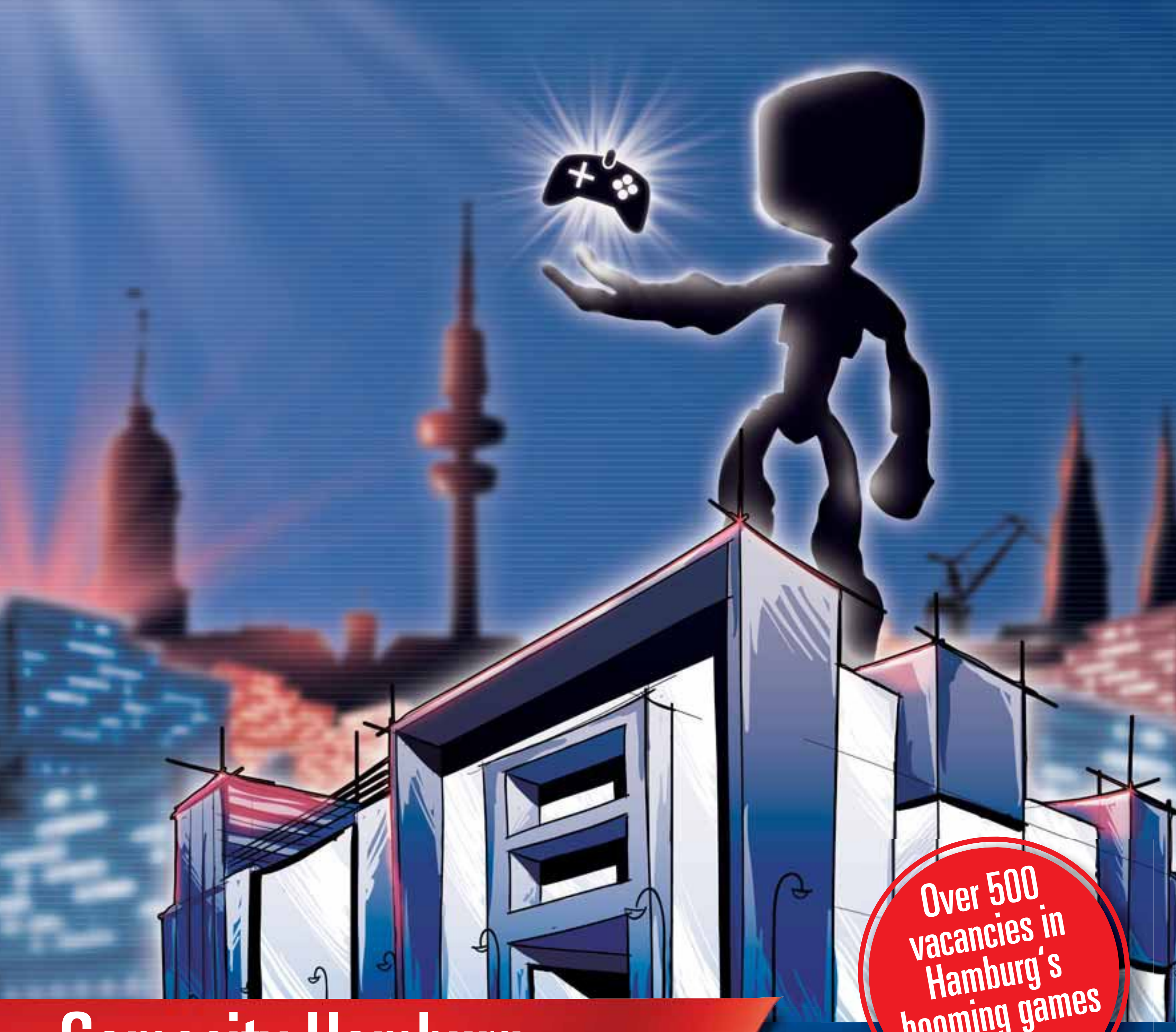
"Acquisition changes what you're worrying about in the long-term; you're not worried about survival anymore," he says. "As an indie developer that's your biggest thing. Every time you make a game you bet the whole company on it. If it fails once, you might survive, but if you have two bad ones in a row, you're dead. In some ways that tends to go away when you become an internal studio.

"Although in practice I don't think it really does," Simpson continues. "There's plenty of internal studios that have been acquired that have had a couple of bad projects and have then been killed. You still have to produce the quality.

Simpson then states his belief that while the developer is still very much the same studio it was before Sega moved to acquire it, there is now also a new freedom with regard to the studio's own roadmap.

"When you're owned by a publisher, you've got much more power to do what you hope to do; that's the big difference. As an indie, you're kind of limited on how much you are allowed to bet on the future. When you've got a big publisher backing you, you can get more people in, you can do the things that you just didn't have time to do before."

With the *Total War* series going strong and recently expanding to iOS, and the mysterious *Alien* IP in incubation at The Creative Assembly, it certainly seems that, as part of the wider Sega organisation, the studio Tim Ansell founded is stronger than ever.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A one-track mind

Victor Kislyi might not be a household name in the games business yet, but his devotion to his company, and the MMOs it creates, might just see him propelled to development stardom. **Michael French** catches up with World of Tanks' unconventional creator to find out what it's taken to establish the wildly popular game

WORLD OF TANKS has been hard to miss since its launch in 2010. The military MMO has done extraordinarily well for an independently made game in a tough sector. It now courts the attention of an army of users – and was rewarded last month with a Develop Award for Use of Online.

Much of that success is down to the colourful, driven and immensely enthusiastic CEO of the game's studio, Wargaming.net. Like so many others, Victor Kislyi started coding games in his home in his late teens. Unlike many bedroom coders, however, today he runs a studio that employs over 900 staff, and has two more MMOs – *World of Warplanes* and *World of Battleships* underway.

How did your company come to make World of Tanks and specialise in MMOs?
Before *World of Tanks*, we made 13 titles and that was a good – let's say at was a 'university of life' experience.

All of those games were specifically retail titles, single-player with a couple of multiplayer aspects. About four years ago, we realised this industry was going nowhere, when you talk about retail and single-player things. There's piracy, $50 price tags, competition and the developer-publisher relationship, which very rarely works because of contracts, deadlines, money, acceptance, quarterly reports for big publishers which affect your schedule, and other stuff.

Our last big foray was with the London arm of Square Enix with *Order of War*, but again, at a time when not many titles did very well in retail. Even some of the really big franchises failed.

At the same time, we had a sidekick business of advertising and technology called AdRevolver and, to cut a long story short, after a couple of acquisitions and mergers, technically we sold the technology to Yahoo in 2007. We got, I'd say, $12 million, and we wisely did not buy Lamborghinis and Palm Islands and stuff.

Instead we invested in our MMO. At first we were playing with the technology because it was a whole new world to us; server side tech, connectivity, all that stuff.

We were thinking about a fantasy theme first, but then we realised going against *World of Warcraft* and 400 other MMOs out of China and South Korea was probably not a good idea, so we decided to turn around and do something niche.

We thought: 'What were we doing best before?'. The answer was tanks. We had done sci-fi tanks and WWII tanks, so we thought we should do an MMO about tanks.

And you built the entire tech base and studio system needed for an MMO?
We realised that we not only had to be a good developer. We knew that any MMO is a service, so we, from scratch, built a publisher. We hired some good people; we trained some other people, and put some of our own initiatives on the table.

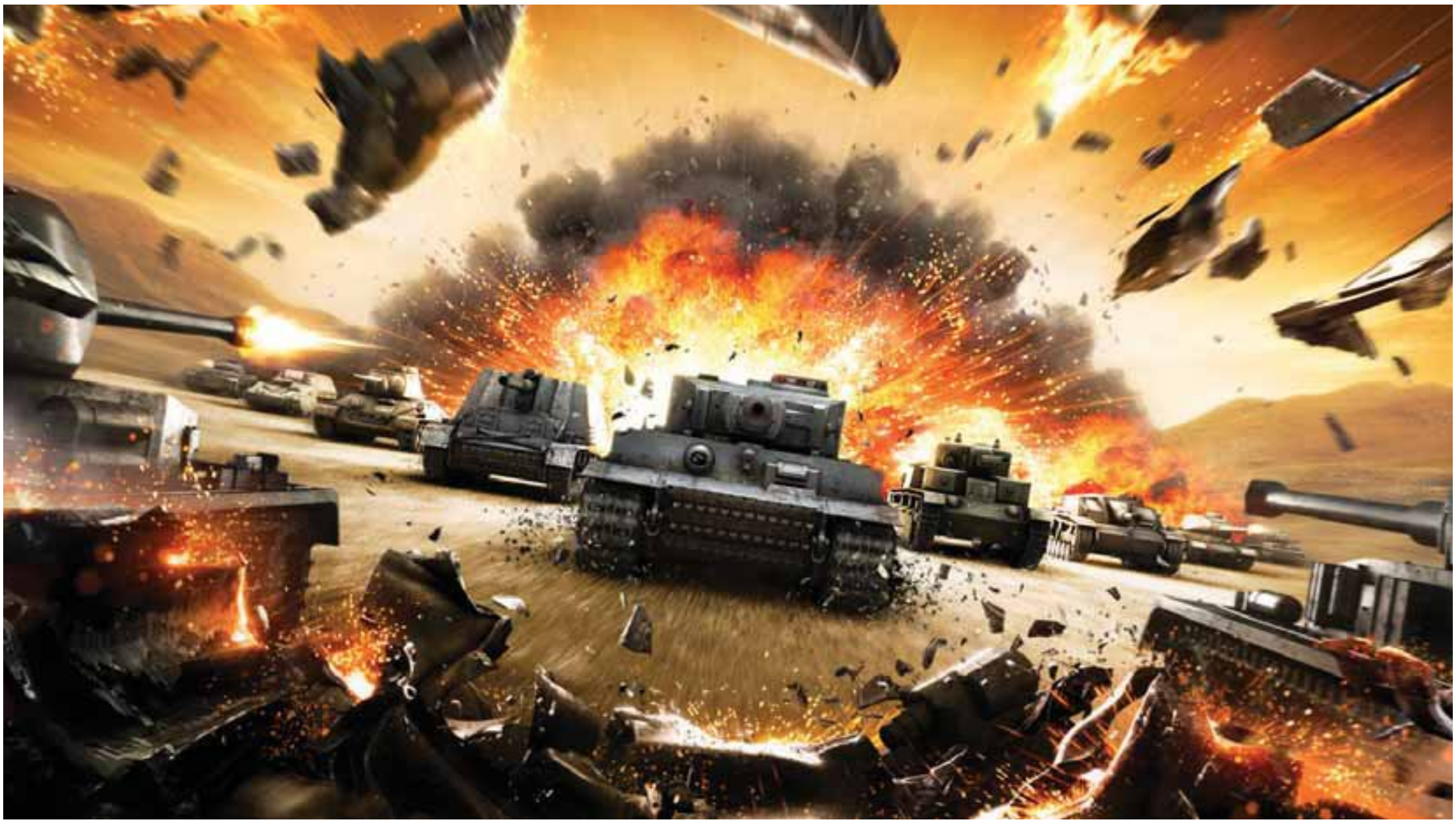
Right now, the whole company is made up of 900 staff, and we had just 120 employees a year-and-a half ago, so impressive progress was made.

Half of that number is developers, making more warplanes, more battleships; and other on-going things.

The other half is the publishing arm. It's the same company but it's a different thing they do. It's community management, it's customer support, financial and fraud stuff, PR and marketing.

Of course, we have the luxury of being a publisher and developer.

So you built your own publisher because you weren't happy with other publishers?
The truth is that none of the traditional retail publishers, even now, know how free-to-play works. They are big guys trying to do something like *Company of Heroes Online*, which went nowhere.



World of Tanks fulfils every arm-chair general's dream of taking one look at the enemy and screaming: "Send in the tanks!"
Far left: Victor Kislyi, CEO of Wargaming.net

But we've been inside the industry intensively for the last five years. Before the decision not to go with the publisher, we did many round the world trips meeting each and every online publisher. Before that we had known all the big publishers from the retail space, and we realised they could not do anything.

The big companies are too big to be democratic and too slow to react to the reality, and these things are moving really fast. The medium online publishers are probably not very powerful and could not provide enough marketing and PR muscle.

So we said 'we're doing it on our own'. The good news for us is that as soon as it was launched in Russia it exploded. We started to have a very healthy revenue stream, so through the development and hiring and updates and patches, it all became possible.

What's your secret your success given you built this operation from scratch?
We went the niche way. First we hand-picked specialists in tank history, WWII historians, museum guys, authors, writers, bloggers, military history enthusiasts and plastic model collectors – you would be surprised at how many of those are in existence. We hand-picked them and created a very small, but very united and passionate community and we called it 'the nucleus' – the core.

Around it was a little bit of advertising and traditional PR and marketing. We pulled in waves of *CounterStrike* players, other shooting game players, and strategy game players.

So it was a very natural growth but it had this exponential component to it. Right now its also growing really fast, so that's where the community management kicks in, because if there's a problem or demand, our community can go to the developers and demand what they want. And if that's not possible then our community guys go back to their work stations and work with apparently millions of angry people on the forum trying to explain to them why it's not possible, or why 'change is good for you, stupid'. It's like a presidential campaign going on every day for seven years. It's political technology stuff where you have millions of angry mails trying to demand something from you collectively. It's difficult so that's why we have very strong guys in community management

> ***"Making an MMO is like war, life and politics. You do it every day. It's hard work and you combine all of your possible means."***
>
> Victor Kislyi, Wargaming.net

At some point you've gone from being super niche to critical mass though.
Don't forget, we've put a hell of a lot of quality in. With *World of Warplanes* for example, I can claim, and very soon it will be true, that when it's finished, and probably around a couple of months or half a year after launch, the amount of investment in this game will be equal to all of the flight simulators made before it combined.

That's millions and millions of dollars, hundreds of thousands of man-hours, and richer and richer technology and testing all the time, and it will go on for five, seven or ten years.

What keeps those users playing?
That's an art. It's personal relationships, it's atmosphere, and of course it's rewards. When the times are bad, you talk to people and explain it to them. It's like war, it's like life and it's like politics. You do it every day. It's hard work and you combine of all your possible means. Financially, we are much more in a position to offer top of the launch kind of guys. We have ten offices around the globe.

What's next for you?
Being an experienced businessman in the gaming industry, of course I can tell you the fairytale of how we will conquer the world, and we will.

Geographically, the publishing arm is spreading to Asia, Brazil, Turkey, the Middle East, Japan, Taiwan and Singapore, so we're going international.

For the next 12 months, it's a very clear business goal – to make the best-of-the-best warplane game so that hardcore flight simulation guys and those who are not very familiar, but would like more casual controls, will be able to enjoy the game.

Also, nice graphics, nice PR, nice packaging, virtual or physical; we've done the same for *Battleships*. That's our goal. While conquering the world virtually, don't forget to put your feet back on the ground and think about what your consumers want now. And, of course, we'll be upgrading *World of Tanks*, so that consumes a lot of our powers and time.

Here's the thing: *World of Tanks* is an obvious hit and we're the company that made it, so our future pretty much depends on whether or not we will be able to prove we can make more successes.

If we can make a conveyor belt for the production of hits – we will be more succesful.
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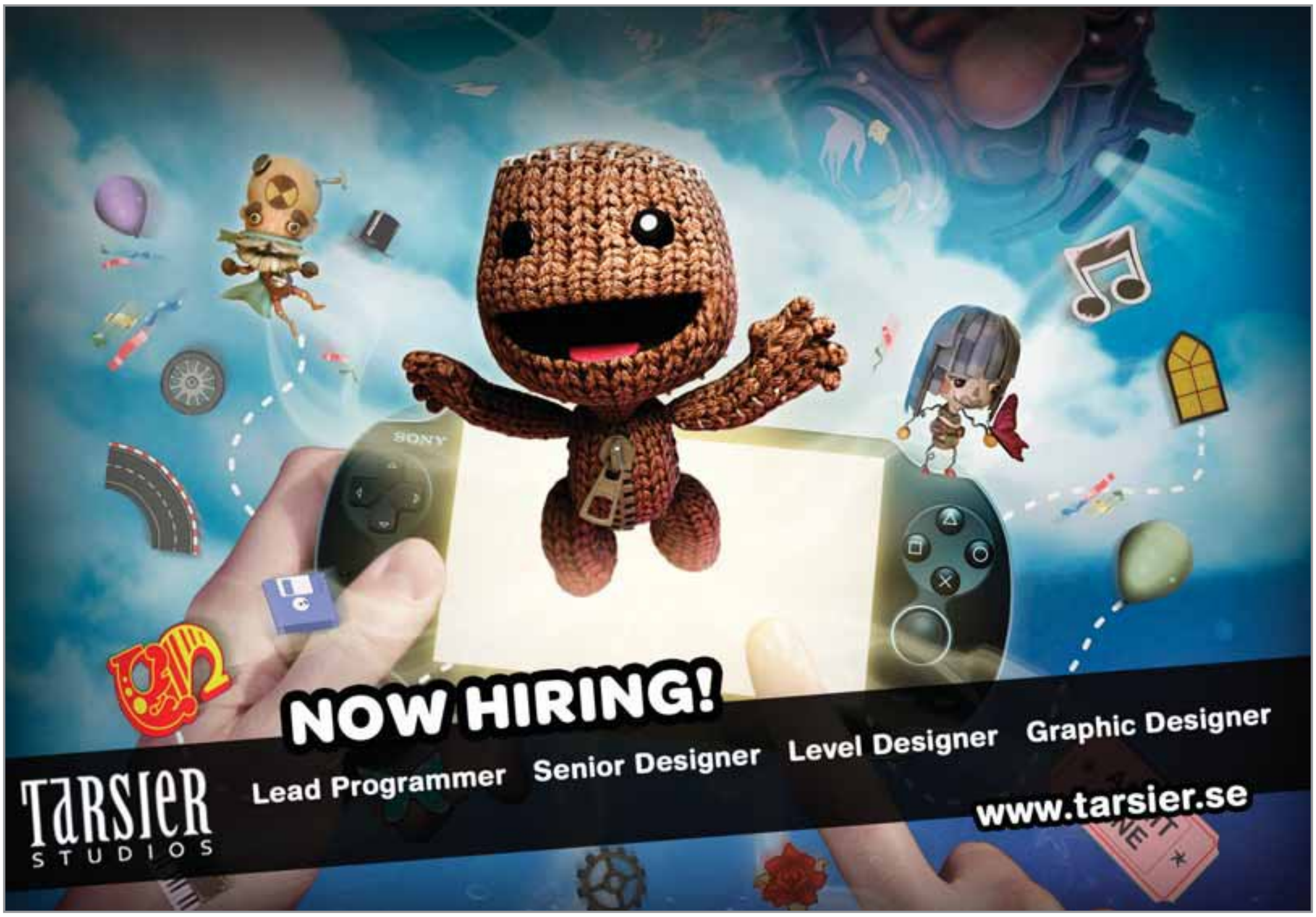

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LittleBigSweden

Despite its small population size, this Nordic country's games output makes an enormous impact across the world. **Will Freeman** speaks to those making one of the world's most productive development hubs count

Studios in Sweden have developed a number of globally successful franchises, such as Tarsier's work on LittleBigPlanet for Vita (above)

THINK OF THE world's most significant games development hubs, and you might not immediately consider Sweden.

And yet this is a country that has created a wealth of global hits in recent years. Trophies from award shows across the planet today reside in Swedish studios' display cabinets, and a wave of talent is making a new home in cities like Stockholm and Malmö.

This is the nation where EA Dice makes *Battlefield*, where *LittleBigPlanet* Vita is being partially-developed, and where *Angry Birds* outfit Rovio has set up a new studio. It is also the home to indie mega-hit *Minecraft*.

Seemingly from nowhere, Swedish developers have together thrust and their country in to the development sector big league, attracting a wealth talent from all over the world.

Alongside studios such as Tarsier, Starbreeze, Massive and Avalanche, tools and services providers including SimplyGon, Hansoft and LocalizeDirect attract a global client list.

In 2011 alone, Sweden's games business' annual turnover increased by a remarkable 50 per cent. And in Stoockholm 1,000 devs are today employed in producing games, making the city one of the top five industry employers in Europe. Quite simply, the country can no longer be ignored.

PERFECTLY FORMED

"Considering how small our population is, I feel we are very prominent on the global stage," says EA Dice senior producer Patrick Liu. "Although the games development scene is fairly small in number of people, it certainly has left a permanent mark on the global scene when it comes to successful studios and games. I think this is thanks to a relatively established technical progress in the country, and a very healthy entrepreneurial vibe, especially in Stockholm, with lots of start-ups in tech businesses."

Numerous Swedish developers are keen to back Liu's perspective, and as with its neighbour and friendly rival Finland, it's clear there's a pride in the output of a country famed as a pleasant place to make a home.

"Sweden has long been one of the most active games development countries in the

From top-to-bottom: SimplyGon's Martin Ekdal, LocalizeDirect's Christoffer Nilsson and Massive Entertainment's Martin Hultberg. Main image: Swedish sensation Minecraft

world," offers Peter Lübeck, studio director at Malmö-based Tarsier, which is working with Double Eleven and Sony XDev Europe to bring Media Molecule's lauded *LittleBigPlanet* series to Vita.

"It is constantly gaining momentum. The larger studios are growing, as well as the small and medium ones. Start-ups are popping up everywhere, and the quality of the results of games development education and competitions has increased dramatically in the past few years."

COMMUNITY MATTERS

Clearly, then, Swedish developers are besotted by their homeland, and delighted by its success in the games sector. But why is the country proving to be so prosperous in such a fiercely competitive industry?

"The most important success factor is our small home market," offers Per Strömbäck, managing director of The Association of Swedish Game Developers. "Sweden shifted its focus to the global audience when the PS2 was released. That was the juncture when the local audience could not sustain a development budget for the new platforms and it gave us a head start on larger countries like Germany and France that kept focus on their home audience for another console generation.

"Also, Swedish culture has a healthy perfectionism, promotes honesty and transparency, endorses creativity and has a strong sense of collective effort, all of which make for a perfect development environment."

Strömbäck has highlighted an important point. Community is indeed particularly crucial to Swedish business, and it's something that generates unanimous enthusiasm from developers, tools outfits and service providers.

"There are quite a lot of events organised by the studios where people from different parts of the games industry meet up to socialise, and staff moving between studios obviously leads to a lot of best practice sharing," states Samuel Ranta-Eskola, senior producer at project management tools firm Hansoft. "I would say that the two clusters – Stockholm and Malmö – are pretty independent of each other, but within them there is a large sense of community. There is no cross-studio collaboration business-wise that I have seen thus far, but I would not be surprised if that was going on between some of the smaller studios."

> ***"Although the games development scene is fairly small in number of people, it certainly has left a permanent mark on the global scene."***
>
> Patrick Liu, EA DICE

Swedish games devs also typically work together to attend international conferences, and like many other important hubs round the world, there's a mutual appreciation within the country for one another's work.

"Importantly, we've never had to compete for contracts, only for talent," adds Strömbäck. "There is this sense that there is enough fish in the sea for everyone. Now if we can only find enough fishermen."

BACK IN THE DAY

Looking back over the history of the Swedish games industry, it also becomes apparent that the country's governing authorities have long-supported the establishment of computer technology as a part of everyday life in Sweden, from Malmö in the south to the country's northerly-most point. From the early days of the personal computer, the

ANGRY FLEDGLINGS

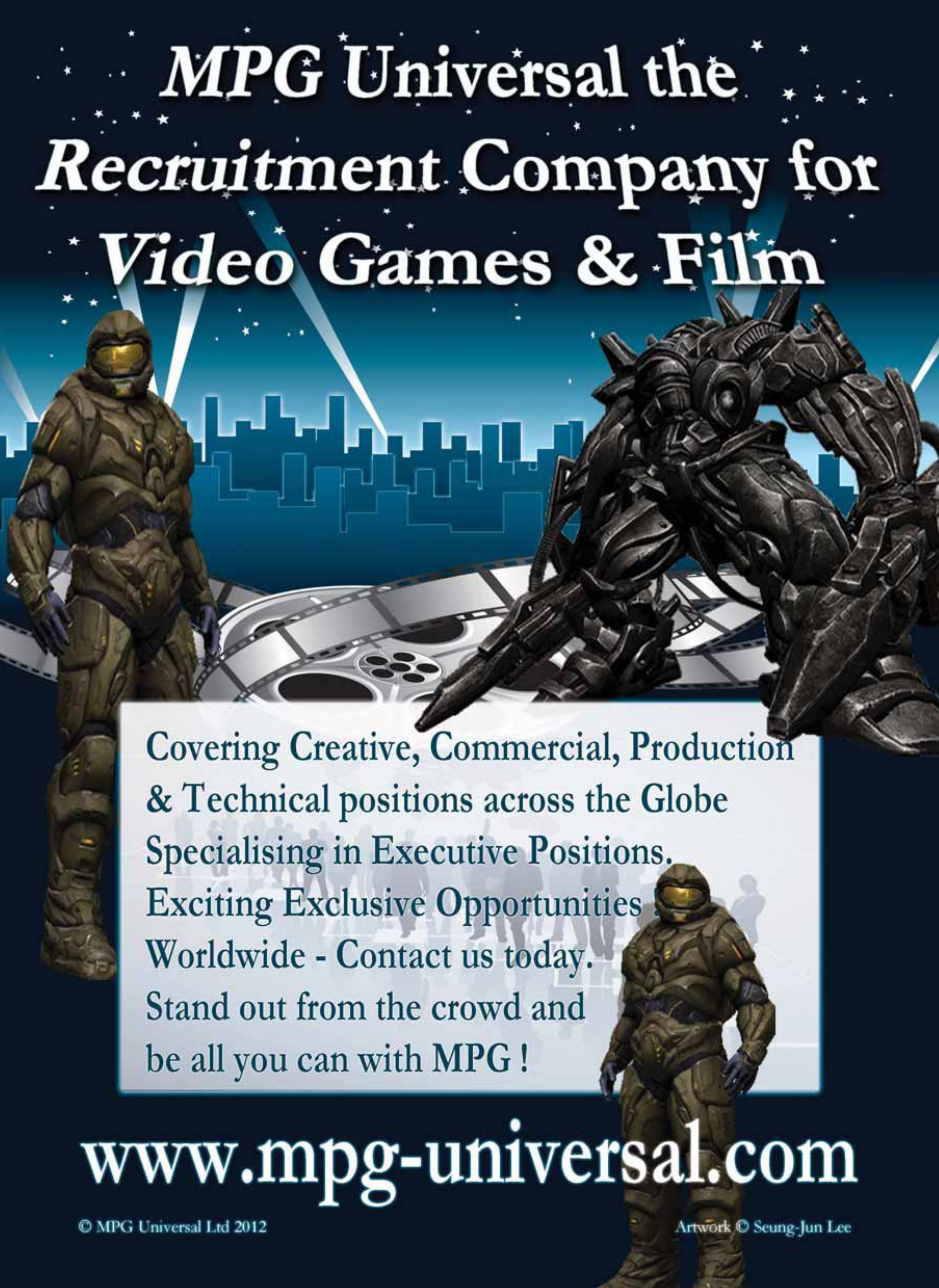
EARLIER THIS YEAR the Swedish games industry got an enormous seal of approval when some of Rovio's team left the Finnish nest to set up a new studio in Stockholm.

According to Rovio's senior team, Sweden was selected due to its vibrant games developer and start-up scene, and the rather more practical matter of its proximity to the *Angry Bird's* studio's headquarters in neighbouring Finland.

"2012 is going to be a big year in gaming for us, and we're constantly on the lookout for great new talent," says Petri Järvilehto, executive vice president of games at Rovio. "We're excited to expand to Stockholm and work in one of Europe's gaming and innovation hotspots."

Maria Sipiläinen from the company's HR team adds: "Rovio's rapidly growing business provides continuous development opportunities for devoted professionals. Our fun, creative atmosphere and unique brands, products and services make Rovio an internationally attractive employer."

Set to serve as a satellite office, Rovio Stockholm will ultimately house a team of up to 30 developers.



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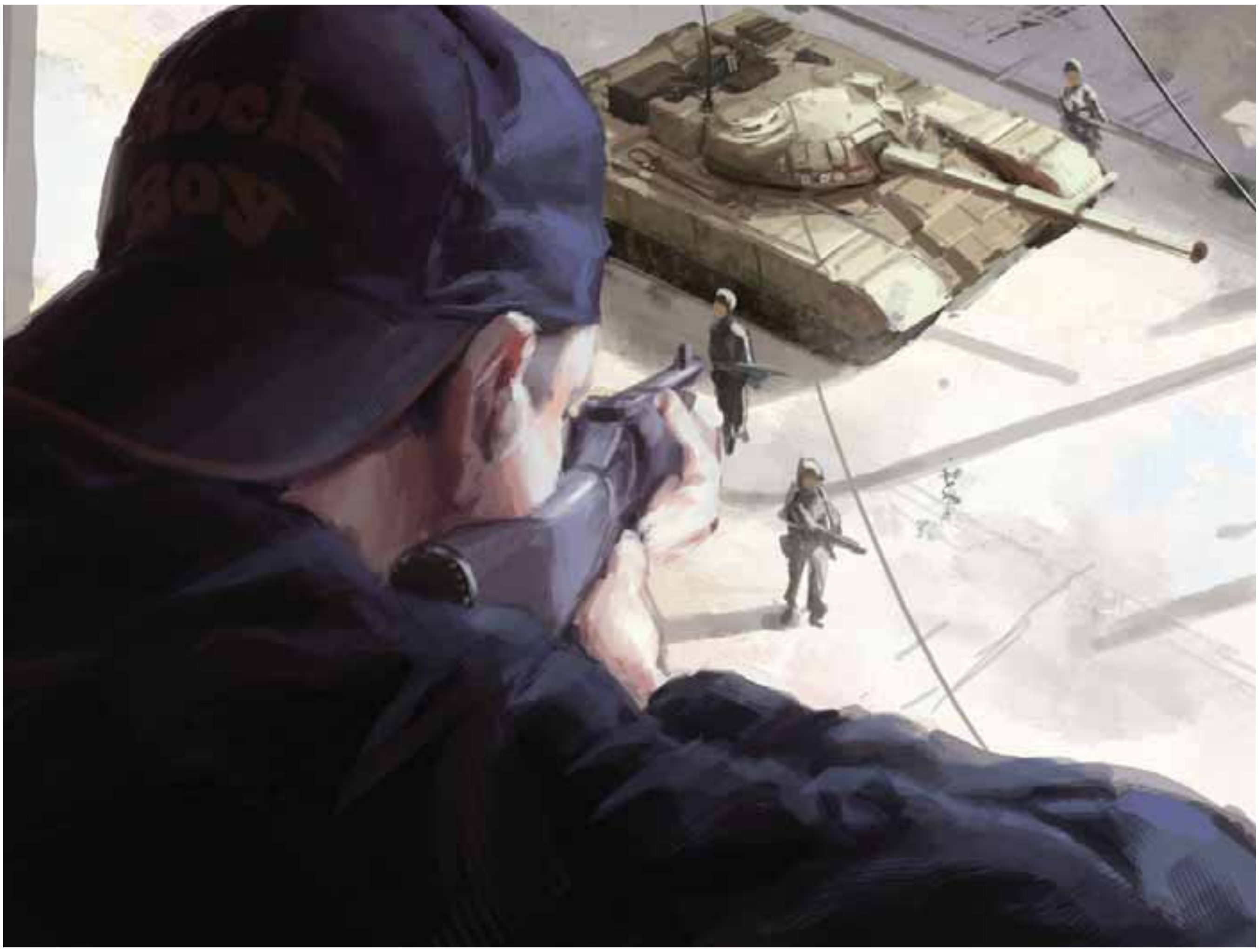


Top to bottom: EA DICE's Patrick Liu, Per Strömbäck of The Association of Swedish Game Developers, Peter Lübeck of Tarsier, Hansoft's Samuel Ranta-Eskola and Rovio's Petri Järvilehto. Main image: Massive Entertainment's RTS World in Conflict

authorities have strived to build an especially tech-literate populace.

"In the late nineties the Swedish government subsidised computers for home usage, which lead to a high number of people having access to computers at home," explains Ranta-Eskola. "In addition to this, the Swedish IT infrastructure was well-developed early."

These two components were key in driving Sweden's initial boom in the computer technology sector, which saw many successful dot-com companies setting up as the internet became an ordinary part of day-to-day life across the West.

"This was very beneficial to the games industry," and we can see a lot of the effects from this strategy now," Ranta-Eskola continues. "I can't say there is any particular segment where the Swedish games industry is especially strong. It feels like it's thriving in all areas as well as driving development on some of the newer platforms."

Another factor that some games companies in Sweden feel is important is the business culture that is working practice not just in the technology sectors, but across the nation's various industries.

"Most Swedish businesses are very flat in their organisation, creating an environment where staff can be creative and experimental," says Christoffer Nilsson, CEO, of localisation specialist LocalizeDirect, before moving on to discuss a Nordic institution that many Finnish devs also credit with fostering talent on their side of the border. "Historically we used to be very strong on the programming and tech side with the demo-scene providing a breeding ground for games programmers. We then followed up with improving our graphical capabilities and most recently also mastered the design functions which has manifested itself in some very impressive titles in the last few years"

> ***"Most Swedish businesses are flat in their organisation, creating an environment where staff can be creative."***
>
> Samuel Ranta-Eskola, Hansoft

COLD COMFORT

Few would be surprised, however, to learn that Swedish games developers have their own set of challenges to overcome before the country can hope to rival the world's gaming superpowers.

Most developers start to address Sweden's obstacles to progress by joking about the region's infamously gloomy winters, but the weather is in fact the least of their worries.

"I think our isolation and distance from everyone else affects our recruiting a lot," says a realistic Liu, who also refutes the idea that Sweden has to put little effort into attracting overseas talent (see panel '*Moving to Sweden*'). "On one hand it's hard to get people to move here; on the other hand once you're established here you'll most likely stay within the community for a while which helps talent retention."

"The recruitment aspect might be a challenge because of, again, the relatively small population," adds Martin Ekdal, VP of sales and marketing at Donya Labs and Simplygon, which provides tool-chain middleware for the automatic optimisation of 3D game content.

"Finding niched people for specific tasks is harder than in the UK, US or Canada for instance. The combination of a very international industry and high regional taxes might cause talent to seek jobs elsewhere and make it hard to keep talent in Sweden."

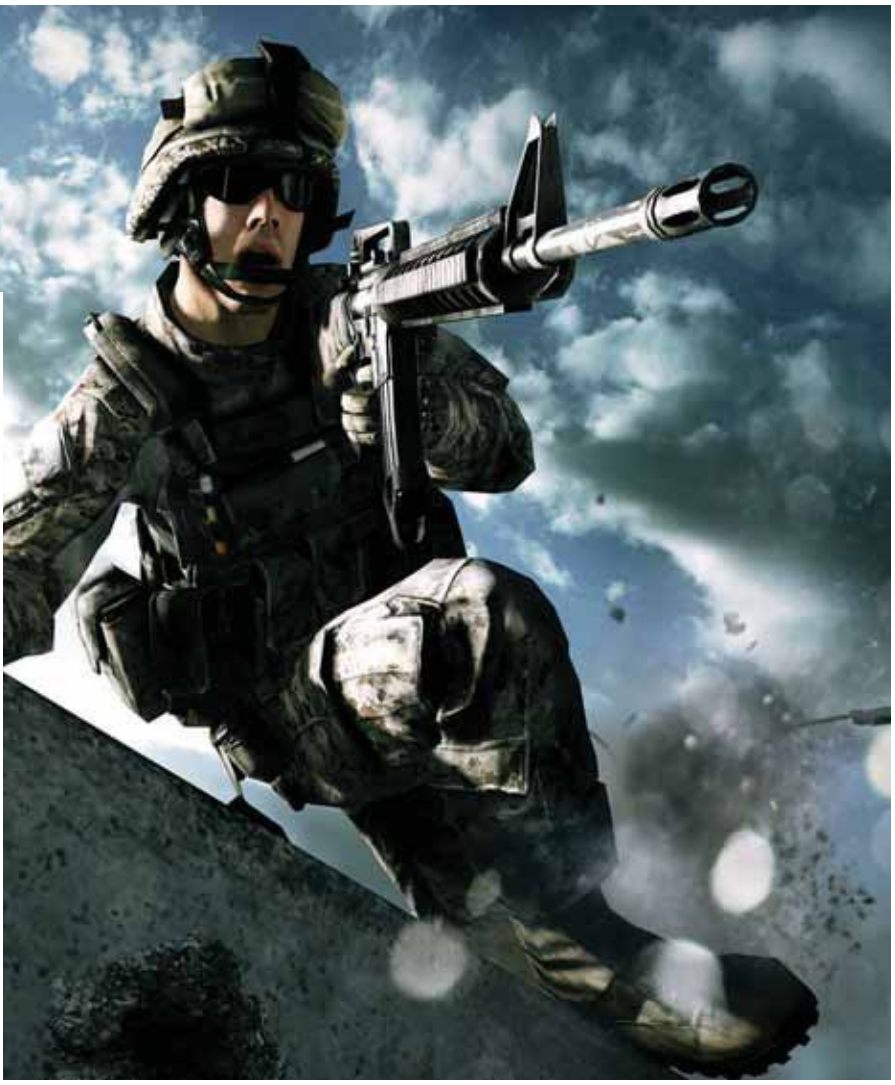
The last substantial task for Swedish developers to address is one that will be familiar to anyone who has seen their own country push for the likes of tax-breaks, as Martin Hultberg, head of communications and user research at Massive details.

"Right now I think one big challenge is subsidies," he says. "Some countries get government sponsored subsidies which make it more likely for large publishers to invest there. We don't have that so running a studio here can be a bit more expensive than in other places."

BRIGHT SPARKS

Certainly, Sweden has not managed to attract as many publishing giants and mega-studios as the likes of Canada, but to dwell on the negatives is to misrepresent the overwhelmingly optimistic outlook of nearly every studio that calls the country a home.

Unlike many other regions, where the relationship between educators and studios is sometimes defined by a troubled relationship, numerous developers are upbeat about the country's games education courses.



"We have a good mix of traditional engineering universities that are heavy on maths and physics as well as more games focused institutions," confirms Nilsson. "Our game-centric courses have now been around long enough for the ex-students to be in hiring positions and they know the institutions very well."

Ekdal adds: "From our tools and middleware point of view, Swedish universities produce great programmers with great math skills, which is absolutely necessary to us. There is no way we could do what we are doing without that. Students seem to find jobs in the industry, both nationally and abroad which says something about the quality."

> ***It's looking good for the large studios as well, with many great IPs either being developed from scratch here, or left in our care.***
>
> Peter Lübeck, Tarsier

Elsewhere positivity is again directed at Sweden's games development start-up culture, which has managed to embrace the likes of iOS, PSN and Steam with aplomb, perhaps inspired by the sensational fortunes of countryman and Mojang Specifications boss Markus Persson.

"Stockholm is currently clearly a tech start-up hub, not just in games, but also in technology overall," suggests Liu. "There's a strong entrepreneurial scene here, so we are likely to see more new and disruptive initiatives coming from here in the future, whether they're new technologies, business models, companies or simply games."

And while some are unsure about the games industry's jobs market in the region, Liu is also quick to point out that a critical mass in terms of talent could see a snowball effect coming. "That would grow the talent pool and number of options even more. In short, I think the future is looking very bright," he says.

There's hope too, for the big studios that have pushed Sweden's games sector into the limelight. With *Battlefield 3* (*above*) and *LittleBigPlanet* serving as perfect examples, it is clear the Swedes know a thing or two about triple-A.

"I'd say it's looking good for the large studios as well, with many great IPs either being developed from scratch here, or left in our care," concludes Tarsier's Lübeck. "*Far Cry* and *LittleBigPlanet* are just two examples of the latter."

Big and small, studios are undeniably prospering in this Nordic region. Together, those that make up the development hub are proving that you don't need tax-breaks and a booming population to make a mark on the global stage.

Sweden is a small country with its populace spread thin, and yet today it is every bit a leading force in making games.

MOVING TO SWEDEN?

RELOCATING TO Sweden makes for a tempting option for games developers with a creeping sense of wanderlust.

It is a beautiful country with a high percentage of fluent English speakers, and a rapidly expanding games industry is accompanied by an enviable quality of life. The country is also famously clean environmentally; so much so that locals insist you can safely take a swim in the river in downtown Stockholm. "Sweden is one of the highest ranked countries in the world when it comes to social welfare," states Peter Lübeck, studio director at Malmö-based Tarsier.

"It has been named one of the happiest countries in the world, the best country for women, and *Newsweek* named it the third best country. Things that are considered fancy benefits in other countries are baked into everyday life in Sweden"

And, fortunately, it's relatively easy for those from outside the Nordic kingdom to make Sweden a home.

"We have helped to relocate a number of people to Sweden in the last year, and each person we have spoken to has commented on the relocation being a relatively stress-free and straightforward process," say Eamonn Mgherbi, business development director at UK recruiter Avatar.

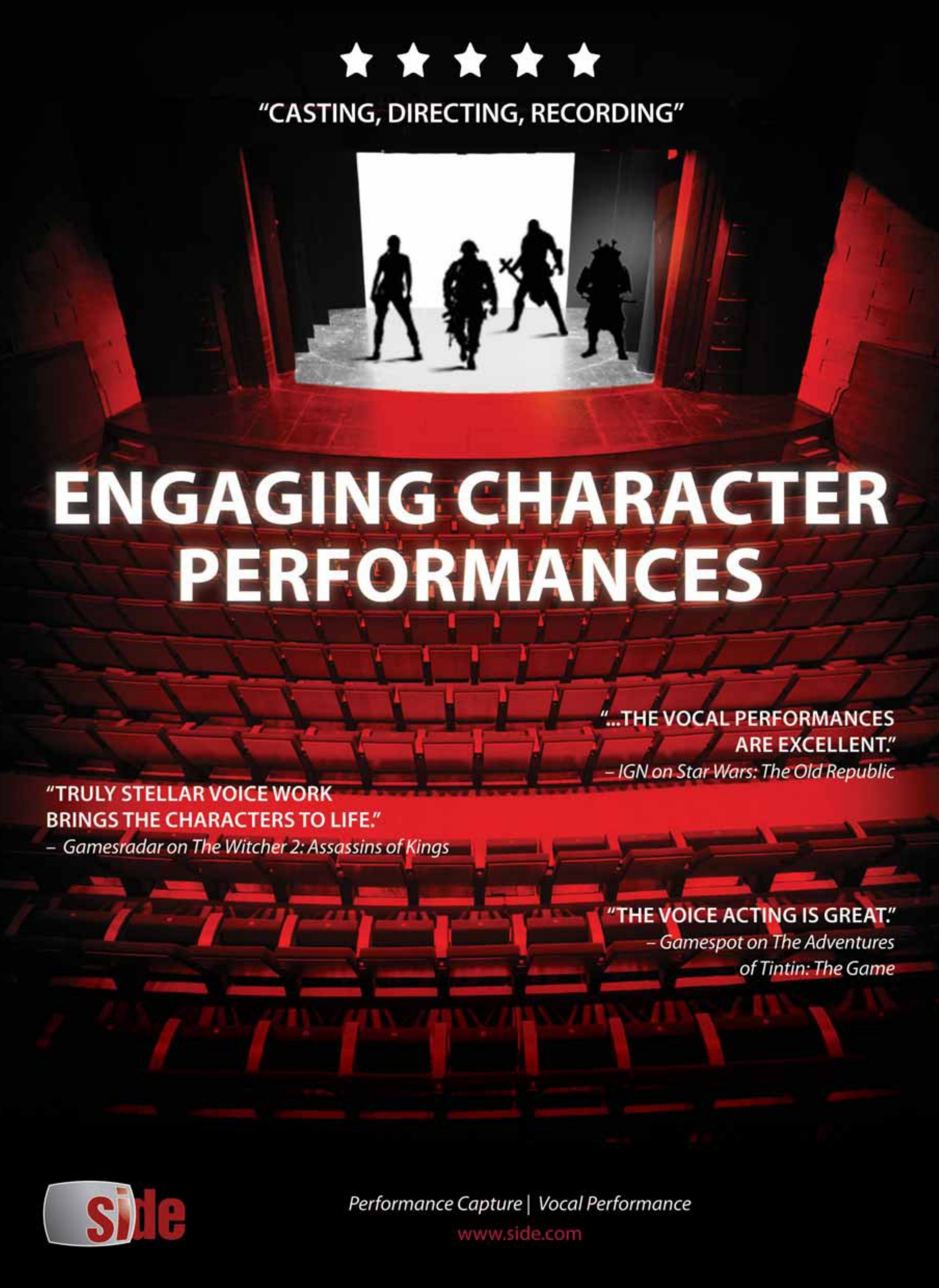
"Most games studios in Sweden offer relocation assistance in the form of financial remuneration, and many also offer direct support with the logistics of relocation for example helping to book reputable removals firms and find suitable accommodation and so on.

"If you are European Citizen then you will have no problem gaining entry and living in Sweden. Alternatively if you are a Non-EU Citizen then many games studios in the country can offer sponsorship and support when applying for a working VISA."

If you're looking for a case study of a studio that has welcomed staff from all over the Earth, developer Massive offers a typical example, as Martin Hultberg, head of communications and user research at the firm reveals.

"If you look at our studio, almost 25 per cent of our co-workers come from abroad. We have people from the US, UK, Australia, Germany, Ukraine, Poland, Denmark, China and in total there are more than 20 nationalities represented at our studio.

"It probably has to do with our way of life and the fact that Swedish studios have a reputation abroad for producing quality games."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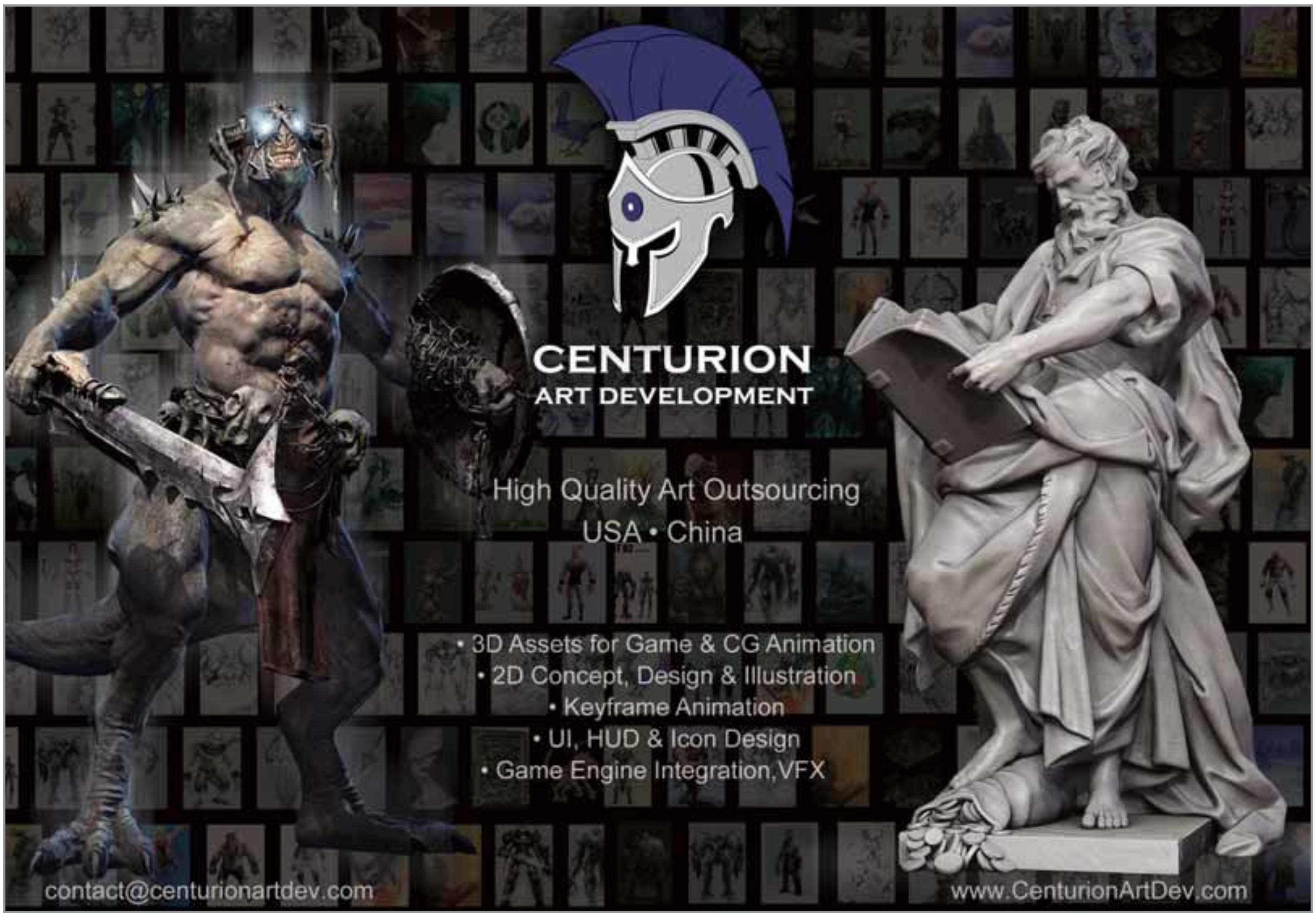

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THE LATEST TOOLS NEWS, TECH UPDATES & TUTORIALS

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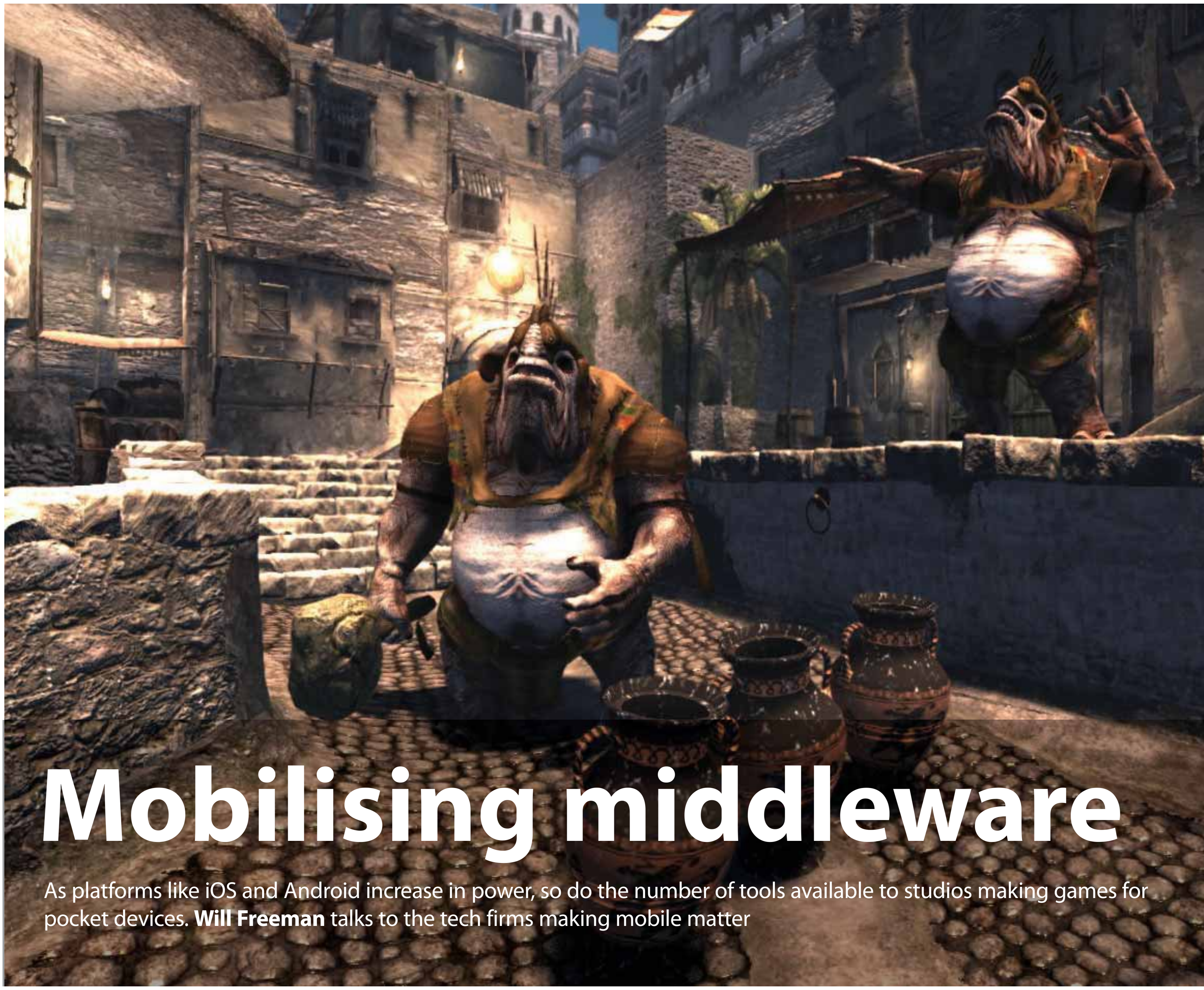
Mobile tools up

Middleware providers are arming today's mobile studios with a new arsenal of tech, bringing triple-A to the back pocket. *Develop* investigates, p64

Implementing 2D platformers; Part two p68

Animation loading in Flash p75



Mobilising middleware

As platforms like iOS and Android increase in power, so do the number of tools available to studios making games for pocket devices. **Will Freeman** talks to the tech firms making mobile matter

Havok's mobile tech (main image). Above: Havok's Andrew Bowell (top) and Epic's Mike Gamble

ANYBODY INVOLVED IN the games industry today will have heard 'triple-A on mobile' touted as the future in recent months.

Arguably, it is already here, with titles like *Infinity Blade* and *Shadowgun* some time ago demonstrating console-quality visuals on portable devices.

And, yet, at the same time, open platforms such as mobile and tablet devices have become the playground for numerous small studios spearheading the ongoing indie revolution, which shows few signs of abating.

As a result, a wealth of established middleware companies have moved to support the likes of iOS and Android. First it was the engine outfits, and, closely behind them, increasingly specific middleware offerings. AI, UI, animation and even meteorological simulation tools have now graced the mobile realm.

Some may argue that mobile doesn't need such tailored tools, and others may doubt their power when stripped back for mobile. But such attitudes are barely conducive to progress, as mobile emerges as a worthy parallel to console gaming.

DRAWING THE BATTLE LINES

The Creative Assembly's *Total War Battles* project lead Renaud Charpentier knows all about how far things have come. He recently wrapped work on the title, which takes the studio's high-end PC RTS series to iOS, and does much to set a new frontline for mobile games.

"You have ready-to-use solutions for everything," says Charpentier. "Advance rendering, physics simulation, networking, advanced animation systems. All the major tech that used to be triple-A console or PC now runs on your smartphone."

Certainly, developers aren't quite yet served by hardware to the point where they can use every available advancement on a single project, or push them as much as is possible on a high-end PC, but the rate of progress is astonishing.

"You already have many games relying on what used to be termed 'advanced features'," continues Charpentier. "Some use real-time water simulation, or other very advanced rendering techniques. Even a seemingly simple game like *Angry Birds* relies on physics simulation. In the latest update for *Total War Battles: Shogun*, we added a nice kind of cloth simulation to wave our flags and trees in the wind. Some recent PC games could be jealous of that."

And while PC and console hardware continues to evolve, relatively speaking, mobile platforms are progressing in their abilities at a far faster rate, even if they still have a long way to go.

"While the performance and capabilities of mobile devices are evolving faster than console and PC offerings, fundamentally the power and heat issues of mobile devices keep them lagging behind their big brothers in terms of the high-end gaming experience," states a pragmatic Mike Gamble, who serves as European territory manager for Epic Games. "However, what is also happening is that mobile devices are now at a point where

traditional console and PC developers can leverage their triple-A development skillsets and technologies to deliver games of unprecedented quality."

FOLLOWING THE TALENT

Gamble highlights an important point. To an extent, part of the migration of triple-A tools and techniques to mobile is a reaction to individual developers with a history in traditional games moving into making content for mobile, and bringing with them an expectation and skillset best served by established middleware.

Tech giant Autodesk is one of those responding to console developers reinventing themselves in the mobile space. Just recently it has repackaged its ubiquitous UI tool Scaleform for mobile, in part as a direct response to the needs of the countless developers who have used the solution in other sectors.

"Scaleform's a mature middleware technology that's been in over 1,000 games," offers Autodesk's Kevin Booth, business lead of Gameware EMEA. "As a result we have a number of developers with plenty of experience with Scaleform in the traditional space who are now moving into mobile. It's not just new start-ups in the mobile space, but even established triple-A developers. Those guys are used to high-quality tools like Scaleform. As they move over to the mobile space, it seems a good idea to give them the tools they are familiar with."

And so it is that the tools follow the people making games, with a role call of middleware's biggest names moving in on mobile in recent years and months, including the likes of Havok, xaitment, Geomerics and FMOD to name but a few.

But those companies and many others are acutely aware that the mobile space is filled with perhaps the richest variety of studio models seen on any platform. There are nimble microstudios, well-funded start-ups, grassroots indies, in-house publisher dev houses and the iconic lone bedroom coders. Each is vital to the mobile ecosystem, and not all are au fait with the minutiae of high-end tools, licensing models and advanced techniques around.

"Not all developers have experience working on high-end console games," confirms Chris Doran, founder of lighting specialist and Enlighten creator Geomerics. "You have to take extra steps to wrap up your technology as simply as possible for people who just want to get a game out. Our philosophy remains to expose as many hooks into the tech as possible, but to set them up with sensible defaults, so developers don't have to worry about some of the options if they are happy with what they are getting."

PUSHING THE PLATFORM

Despite the open-minded efforts of companies like Geomerics, the potential – and limitations – of mobile hardware remain of paramount concern for tools companies looking to fuel and support the mobile boom. But, as it turns out, sometimes mobile middleware serves as a great way to test and push the abilities of the hardware.

"Havok technology has always been a great way to assess a platform's power and ability," says the company's head of product management Andrew Bowell. "Products like Havok Physics are all about using a platform's CPU and memory bandwidth in the most efficient way."

> ***"Mobile devices are now at a point where traditional console devs can leverage their triple-A skillsets and tech."***
>
> Mike Gamble, Epic Games

To that end, as Havok ports its famed Physics solution across to a new mobile platform, the outfit's tech team devote enthusiastic energy to exploring how many rigidbodies or ragdolls they can throw into a given scene.

"For the more recent mobile and tablet platforms we have been pleasantly surprised as to how well they handle 3D physics," continues Bowell. "We're excited to see what sort of innovative gameplay Havok Physics on mobile or tablet can deliver."

MONEY MATTERS

It's clear then, that the potential of mobile is vast. But tools firms must make money to survive, and as such the pricing of mobile middleware for the aforementioned variety of studios has become a fine art.

"There are alot of people breaking into mobile games development, but many of them have come to expect world-class tools for free," suggests Frank Kane, founder of real-time sky and 3D cloud rendering middleware provider Sundog Software. "While democratisation of game development is a great thing, it does present challenges for the monetisation of tools and tech.

BEYOND THE RINGTONE

THINK OF MOBILE, and audio output isn't the first thing that springs to mind.

That is, unless you're somebody like Brett Paterson of game audio firm FMOD.

"We've been actively supporting mobile developers for nearly a decade now, mainly starting with early Windows CE support and Microsoft smartphones in the old days," confirms Paterson. "We support as many platforms as possible, counting around 15 now, so iOS, Android and Windows Phone are natural fits. We don't have to do a lot of work to adapt because FMOD is an optimised, low-overhead runtime engine."

Most of the work on mobile platforms for audio specialists like FMOD is in fact focused on handling phone call and other OS-based interruptions that disrupt audio; certainly a new challenge, and absolutely a new opportunity.

"Alongside providing FMOD for free for titles that are not commercial in nature, supporting this many platforms lead to FMOD being the most widely used audio engine available right now," continues Paterson.

"If a games developer wants to support five platforms, and you only support three, then they'll look elsewhere. We pride ourselves in covering all bases, and think it has been quite important in the success of our library."

Top-to-bottom: Sundog Software's Frank Kane, Brett Paterson of FMOD, Geomerics' Chris Doran, Renaud Charpentier of The Creative Assembly, and Unity's David Helgason.

"Our mobile products are an investment for the future – we think monetisation will sort itself out in time as larger budget niches for mobile development grow. These things take time, just like how generating revenue through ads in mobile apps took time to start to take off."

> ***"Games are a great way to help mobile companies display the advantages of their platform over others."***
>
> Andrew Bowell, Havok

ALL TOGETHER NOW

Other than the issues of evolving a workable pricing model for mobile games tools, another key theme driving those behind the solutions is collaboration. Having spent years working on plug-ins, and with other companies' pipelines, tools providers are more familiar than most in the games business with cooperating with would-be rivals, but there is still a way to go in the mobile arena.

And, as it happens, collaboration with the hardware companies themselves is helping to progress the very platforms that host these games.

"I think the mobile hardware companies have already learned that games are a great way to push their tech and help them display the advantages of their platform over others," suggests Bowell.

"That fact has moved many hardware companies to open up native access to their hardware and establish ecosystems that support games developers. Ultimately this benefits tools, technology companies and games developers alike."

Unity CEO and founder David Helgason agrees with Bowell's assertions. The relationship between tech makers and mobile hardware producers is vital for all that occupy the triptych that sees games, tools and hardware as a single entity.

"We do work closely with most of them," says Helgason of the mobile manufacturers. "It's about pedestrian – but important – things like testing and certification to make sure that Unity games work on new devices, but also collaboration on enabling new functionality and optimising existing capabilities. And, of course, working together on marketing to show both consumers and developers what's really possible."

THE FUTURE'S BRIGHT

Looking ahead at how tools for mobile games development will advance, perhaps predictably optimism abounds. But developments in hardware capabilities

EVERY CLOUD…

IF ANYTHING SERVES as evidence that middleware is thriving on a platform, it is when those behind highly specific solutions move to support the device.

That is something that has certainly happened within the mobile sector, with companies like real-time sky and 3D cloud rendering tool provider Sundog already supporting hardware that not so long ago only sported black and white screens.

"We started off developing a Unity version of our SilverLining Sky, Cloud, and Weather SDK last October, which opened us up to all the platforms Unity supports, including iOS and Android," explains Frank Kane, Sundog founder. "It wasn't as hard as we thought it would be. Building on that, we went closer to the metal and developed an Android library version of SilverLining in mostly native code – which again wasn't all that hard, as our source code was cross-platform and supported OpenGL from the start."

Depending on the level of interest Kane and his team see from Android, iOS is next on their target list.

continue to dictate the hopes and plans of those at tech providers.

"As our engine is cross-platform, we're just keeping an eye out for co-processors in mobile devices that can help us decode mp3s in real-time, ogg vorbis audio data, and eventually letting us push our new multi-core DSP engine into the mobile space," explains Brett Paterson, CEO of audio outfit FMOD, which is making an impact in the blossoming area of sound tech for mobile.

"Our new DSP engine will allow audio to be spread across multiple CPUs at once, at the discretion of the programmer. And while we're just starting to do this for modern day PCs and consoles, we can see that this is going to happen for mobile devices as well."

Others are looking to predict which platforms will rise to rival iOS, with Android being the clearest choice for savvy middleware providers with an eye on how to best serve opportunistic developers.

"This field changes so quickly it's hard to say where it's going," admits Kane. "My personal observations are that Android seems to be picking up speed, as developers are starting to better appreciate its openness and install base.

"And as more tools emerge to make high-performance 3D applications easier to develop on mobile platforms, I think we'll see more apps taking advantage of those capabilities in creative ways."

But the most important trend, asserts Helgason, is the sheer number of devices. That number is spiraling globally, particularly as consumers in emerging markets embrace mobile with feverish devotion.

"The most important trend is simply that we're going from hundreds of millions of devices today, to billions in the next few years," says Helgason. "And with gaming being the dominant use case for tablets, and a major one for phones, the opportunities are ridiculously big."

> ***"The most important trend is we're going from hundreds of millions of devices today, to billions in the next few years."***
>
> David Helgason, Unity

Few in the industry would question Helgason's prediction. It is increasingly becoming a reality every day, and as a result tools providers have more reason than ever to invest in their mobile operations.

Whether you're a developer yourself, or even employed in tools, the future certainly looks bright for mobile.

BEYOND MOBILE

WHILE THE ONCE turbulent waters of mobile gaming are well on their way to settling, the likes of second screen and smart TV are only just emerging as substantial gaming platforms. .

However, such platforms are not so distant from mobile, especially where tools are concerned.

"Developers are looking at making specific games for mobile devices, and ways of making more connected experiences across mobiles and consoles, all of which is extremely exciting," offers Chris Doran, founder of lighting specialist Geomerics. "It is particularly great to see Microsoft embrace the SmartGlass idea. Certainly, five years ago it would have seemed unimaginable that a division within Microsoft would embrace tech running in a rival OS.

"It shows how seriously they are thinking about this connected future with multiple input devices all connected to the cloud."

"With the TV manufacturers, set-top boxes and cloud also in the mix, I wouldn't like to predict how the future [of mobile tools] will pan out. My only suspicion is that the range of options facing the consumer could become quite bewildering, and they may well revert to what they are used to – the latest consoles from companies they trust. Beyond that they will see what is available on whatever 'SmartGlass' they happen to own at the time."

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A PLATFORM FOR SUCCESS

In last month's Develop, Bossa Studios game programmer Rodrigo Monteiro presented the first part of a detailed guide to implementing 2D platformers. Here he continues the piece with the second and final part

PREVIOUSLY RODRIGO Monteiro pointed to four dominant ways in which a 2D platform game can be implemented at studios.

In the article he explored the merits and challenges of the two primary tile-based approaches; pure and smooth.

This month, he tackles the rather more complicated matter of the final two methods: bitmask and vectorial 2D platform game creation.

IMPLEMENTATION TYPE THREE: BITMASK

This is Similar to the smooth tile-based apporach explored last month, but instead of using large tiles, an image is used to determine collision for each pixel.

This allows finer detailing, but significantly increases complexity, memory usage, and requires something akin to an image editor to create levels. It also often implies that tiles won't be used for visuals, and may therefore require large, individual artwork for each level. Due to those issues, it is a relatively uncommon method, but can produce higher quality results than tile-based approaches. It is also suitable for dynamic environments – such as the destructible scenarios in *Worms* – as you can 'draw' into the bitmask to change the scenario.

HOW IT WORKS

The basic idea is very similar to the tile (smooth) algorithm – you can simply consider each pixel to be a tile, and implement the exact same algorithm, and everything will work, with one major exception – slopes. Since slopes are now implicitly defined by the positioning between nearby tiles, the previous technique doesn't work, and a much more complex algorithm has to be used in its place. Other things, such as ladders, also become trickier.

SLOPES

Slopes are the primary reason why this type of implementation is very hard to get right. Unfortunately, they are also near-mandatory, as it would make no sense to use this implementation without slopes. Often they're the reason why you're even using this system.

This is, roughly, the algorithm used by *Talbot's Odyssey*:

- Integrate acceleration and velocity to compute the desired delta-position vector (how much to move in each axis).
- Step each axis separately, starting with the one with the largest absolute difference.
- For the horizontal movement, offset the player AABB by three pixels to the top, so he can climb slopes.
- Scan ahead, by checking against all valid obstacles and the bitmask itself, to determine how many pixels it is able to move before hitting an obstacle. Move to this new position.
- If this was horizontal movement, move as many pixels up as necessary (which should be up to three) to make up for the slope.
- If at the end of the movement, any pixel of the character is overlapping with any obstacle, undo the movement on this axis.
- Regardless of the result of the last condition, proceed to do the same for the other axis.

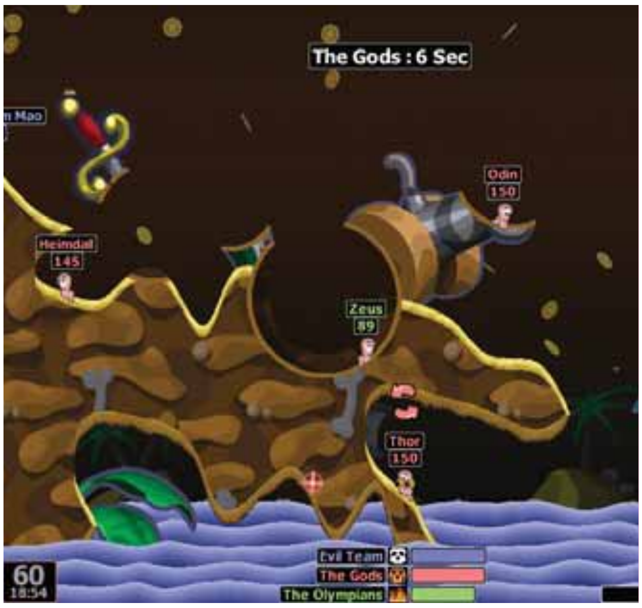
Because this system has no distinction between moving down, whether you're going downhill or because you're falling, you're likely to need a system counting how many frames it's been since the character last touched the floor, for purposes of determining whether it can jump and for changing animation.

For *Talbot's Odyssey*, for example, this value is ten frames.

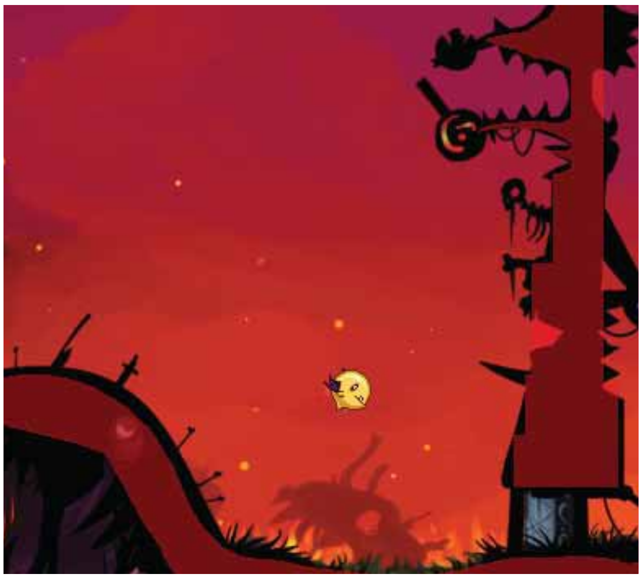
Another trick here is efficiently computing how many pixels it can move before hitting something. There are other possible complicating factors, such as one-way platforms (dealt in the exact same way as for tiled (smooth); see part one of this article in last month's issue) and sliding down steep inclines (which is fairly complex and beyond the scope of this article).

In general, this technique requires a lot of fine-tuning, and is intrinsically less stable than tile-based approaches.

I only recommend it if you absolutely



Worms World Party, featuring destructible terrain as part of its dynamic environments



Talbot's Odyssey, with the collision bitmask overlaid on top of the game, visble in dark red

IMPLEMENTATION TYPE FOUR: VECTORIAL

This technique uses vectorial data (lines or polygons) to determine the boundaries of collision areas.

Although very difficult to implement properly, it is nevertheless increasingly popular due to the ubiquity of physics engines, such as Box2D, which are particularly suitable for implementing this technique.

It provides benefits similar to the bitmask technique, but without major memory overhead, and using a very different way of editing levels.

HOW IT WORKS

There are two general ways of approaching the vectorial method:

- Resolve movement and collisions yourself, similar to the bitmask method, but using polygon angles to compute deflection and have proper slopes.
- Use a physics engine (For example Box2D)

Obviously, the second is more popular (though I suspect that *Braid* went for the first), both because it is easier and because it allows you to do many other things with physics in the game.

Unfortunately, in my opinion, one has to be very careful when going this route, to avoid making the game feel like a generic, uninteresting physics-platformer.

COMPOUND OBJECTS

This approach has its own unique problems. It may suddenly be difficult to tell whether the player is actually standing on the floor (due to rounding errors), or whether they are hitting a wall or sliding down a steep incline. If using a physics engine, friction can be an issue, as you'll want friction to be high on the foot, but low on the sides.

There are different ways to deal with those, but a popular solution is to divide the

> **“*The bitmask approach allows finer detailing, but significantly increases complexity, memory usage, and requires something akin to an image editor to create levels. It also often implies that tiles won't be used for visuals, and may therefore require large, individual artwork for each level.*”**
>
> Rodrigo Monteiro, Bossa

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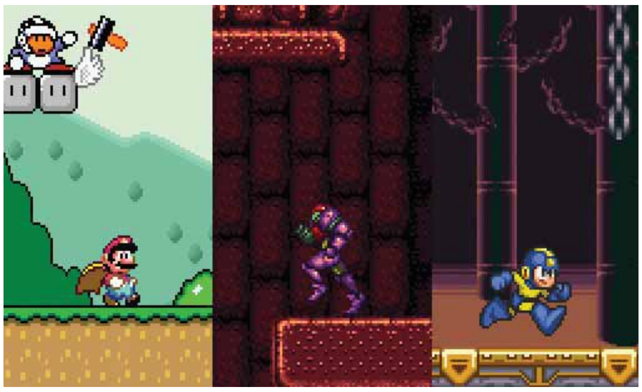

Left-to-right: Super Mario World (low acceleration), Super Metroid (mid-acceleration), and Mega Man 7 (high acceleration)

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Super Metroid's Samus performing the 'Space Jump' (with 'Screw Attack' power-up); a distinct example of jump control

Blizzard's Blackthorne, with the character doing a long animation before shooting backwards

character into several different polygons, each with different roles associated: so you'd (optionally) have the main central body, then a thin rectangle for feet, and two thin rectangles for sides, and another for head or some similar combination.

Sometimes they are tapered to avoid getting caught into obstacles. They can have different physics properties, and collision callbacks on those can be used to determine the status of character. For more information, sensors (non-colliding objects that are just used to check for overlap) can be used, which I have described below.

Common cases include determining whether we're close enough to the floor to perform a jump, or if the character is pushing against a wall, and so on.

GENERAL CONSIDERATIONS

Regardless of the type of platform movement that you have chosen (except perhaps for 'type one', as detailed in last month's issue), a few general considerations do apply.

ACCELERATION

One of the factors that affects the feel of a platformer the most is the acceleration of the character.

Acceleration is the rate of change in speed. When it is low, the character takes a long time to reach its maximum velocity, or to come to a halt after the player lets go of controls. This makes the character feel 'slippery', and can be hard to master.

This movement is most commonly associated with many entries in the *Super Mario* series.

When the acceleration is high, the character takes very little (or no time) to go from zero to maximum speed and back, resulting in very fast responding, 'twitchy' controls, as seen in the *Mega Man* series. I believe that *Mega Man* actually employs infinite acceleration. That is, you're either still or at full-speed.

Even if a game has no acceleration on its horizontal movement, it is likely to have at least some for the jump arcs – otherwise they will be shaped like triangles.

HOW IT WORKS

Implementing acceleration is actually fairly simple, but there are a few traps to watch out for.

- Determine xTargetSpeed. This should be 0 if the player is not touching the controls – maxSpeed if pressing left or +maxSpeed if pressing right.
- Determine yTargetSpeed. This should be 0 if the player is standing on a platform, +terminalSpeed otherwise.
- For each axis, accelerate the current speed towards target speed using either weighted averaging or adding acceleration.

The two acceleration methods seen here are as follows:

- Weighted averaging: acceleration is a number ('a') from 0 (no change) to 1 (instant acceleration). Use that value to linearly interpolate between target and current speed, and set the result as current speed:

```
vector2f curSpeed = a * targetSpeed + (1-a) * curSpeed;

if (fabs(curSpeed.x) < threshold) curSpeed.x = 0;

if (fabs(curSpeed.y) < threshold) curSpeed.y = 0;
```

- Adding acceleration: We'll determine which direction to add the acceleration to (using the sign function, which returns 1 for numbers >0 and -1 for <0), then check if we overshot. This method produces more realistic results.

```
vector2f direction =
vector2f(sign(targetSpeed.x - curSpeed.x),

sign(targetSpeed.y - curSpeed.y));

curSpeed += acceleration * direction;

if (sign(targetSpeed.x - curSpeed.x) != direction.x)

curSpeed.x = targetSpeed.x;

if (sign(targetSpeed.y - curSpeed.y) != direction.y)

curSpeed.y = targetSpeed.y;
```

It's important to integrate the acceleration into the speed before moving the character, otherwise you'll introduce a one-frame lag into character input.

When the character hits an obstacle, it is a good idea to zero his speed along that axis.

JUMP CONTROL

Jumping in a platform game can be as simple as checking if the player is on the ground (or, often, whether he was on the ground anytime on the last n frames), and, if so, giving the character an initial negative y speed (in physical terms, an impulse) and letting gravity do the rest.

There are four general ways in which the player can control the jump:

- **Impulse:** Seen in games such as *Super Mario World* and *Sonic the Hedgehog*, the jump preserves the momentum (that is, in implementation terms, the speed) that the character had before the jump. In some games, this is the only way to influence the arc of the jump – just like in real life. There is nothing to implement here. It will be like this unless you do something yourself to stop it.
- **Aerial acceleration:** That is, retaining control of horizontal movement while in mid-air. Though this is physically implausible, it is a very popular feature, as it makes the game's character much more controllable. Almost every platformer has it, with exceptions for games of a similar ilk to *Prince of Persia*. Generally, the airborne acceleration is greatly reduced, so impulse is important, but some games (such as *Mega Man*) give you full air control. This is generally implemented through merely tweaking the acceleration parameter while you're airborne.

- **Ascent control:** Another physically implausible action, but very popular, as it gives you much greater control over the character. The longer you hold the jump button, the higher the character jumps. Typically, this is implemented by continuing to add impulse to the character (though this impulse can incrementally decrease) for as long as the button is held, or alternatively by suppressing gravity while the button is held. A time limit is imposed, unless you want the character to be able to jump infinitely.
- **Multiple jumps:** once airborne, some games allow the player to jump again, perhaps for an unlimited number of times (as in the Space Jump in *Super Metroid* or the flight in *Talbot's Odyssey*), or for a limited number of jumps before touching the ground ('double jump' being the most common choice). This can be accomplished by keeping a counter that increases for each jump and decreases when you're on the ground (be careful when you update this, or you might reset it right after the first jump), and only allowing further jumps if the counter is low enough. Sometimes, the second jump is shorter than the initial one. Other restrictions may also apply – the Space Jump only triggers if you're already doing a spin jump and just began to fall.

> ***"You should have leading animations for things such as jumping and running, but if you care about how the game responds, make those cosmetic only."***
>
> Rodrigo Monteiro, Bossa

ANIMATIONS AND LEADING

In many games, your character will play an animation before actually performing the action you requested.

However, on a twitchy action-based game, this will frustrate players – don't do that. You should still have leading animations for things such as jumping and running, but if you care about how the game responds, make those cosmetic only, with the action taken immediately regardless of the animation.

SMOOTHER MOVEMENT

Using integers to represent the position of the characters is wise, as it makes it faster and stable.

However, if you use integers for everything, you will end up with some jerky motion. There are multiple solutions to this. These are just a few:

- Use a float for all computations and for storing position, and cast to int whenever you're rendering or computing collisions. This is fast and simple, but it starts losing precision if you move too far away from (0,0). This is probably not relevant unless you have a very large playfield, but it's something to keep in mind. If it comes to it, you can always use a double instead.
- Use a fixed point number for all computations and position, and again cast to int when you're rendering or computing collisions. This is less precise than float and with a more limited range, but the precision is uniform and can, on some hardware, be faster (notably, floating point processing is slow on many common mobile phones).
- Store position as an integer, but keep a 'remainder' stored in a float. When integrating position, compute the delta-movement as a float, add the remainder to the delta-movement, then add the integer part of this value to the position, and the fractional part to the 'remainder' field. On the next frame, the remainder will get added back in. The significant advantage of this method is that you're using an integer everywhere except for movement, ensuring that you won't have floating point complications elsewhere, and increasing performance.

This technique is also very suitable if you have some framework in which the position of the object has to be an integer, or where it is a float, but that same position is used directly by the rendering system. In that case, you can use the framework-provided float position to store integer values only, so as to make sure that the rendering is always aligned to pixels.

Check last month's issue of Develop for part one of this special feature, where you'll learn more on the nuances of platforming game design.

Rodrigo Braz Monteiro designs and programs games, and has done so since 1997. He currently resides in London, UK, working for Bossa Studios as a game developer. He is also a member of the indie group Studio MiniBoss. More of his writing is available at his personal website **higherorderfun.com**.

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The changing face of animation

Dynamixyz might not be a household name in games middleware quite yet, but it's bringing bold ideas about facial animati from other disciplines, including a potential replacement for mo-cap. **Will Freeman** asks CEO Gaspard Breton to elaborate

Markerless facial capture is supported by Dynamixyz's Performer tool, which is optimised for interfacing with existing pipelines

Before we talk about individual products and services, could you give me a brief overview of what Dynamixyz provides? Is there a general direction that defines the kind of tools you create?

Basically, our business is high quality performance-based facial animation.

Despite everything we hear about how hard it is to create nice and realistic-looking facial animation, previous productions have shown that it was possible. That, however, usually requires dedicating a considerable amount of resource and expertise to it.

As a general direction, our goal is to develop tools that enable studios to produce high-end facial animation in a less complex and less expensive way.

With an increasing demand in quality and quantity of facial animation data, our tools offer a complete solution that opens the technology up to a much wider range of budgets and studios, even those with no previous experience of such tools.

What distinguishes your tools from those made by other facial animation outfits?

Completeness is probably one of the importance differences.

Indeed, the term facial animation encompasses a chain of different processes, the most important ones being performance capture, facial features tracking, and motion transfer to a virtual character.

Each of those processes has its challenges, and solving only one of them would lead to a partial solution, unlikely to help non-experts

> **Based upon its expertise in the field of facial feature tracking and expression recognition, Dynamixyz has developed a statistical tool making it possible to replace motion capture.**
>
> Gaspard Breton, Dynamixyz

to achieve good quality. It was important to us to be able to offer a complete solution, which is why the Dynamixyz tools cover the whole chain of facial animation production. Each of the modules of that chain, however, has open data formats, and can be used independently to better integrate to different production pipelines.

On a more technical aspect, what defines the technology is that it uses markerless tracking, which is very well adapted to the characteristics of facial motion capture.

What is Dynamixyz's experience in the games industry?
Originally, the founders of Dynamixyz come from a different technical world, where markerless, video-based tracking techniques are the state-of-the-art. Now, this technological framework encounters a growing interest in the graphics community, as it helps solving problems that were not well addressed by existing hardware and software; typically in facial animation.

The knowledge and expertise of Dynamixyz is thus very valuable in the establishment and democratisation of those new technologies.

The work of Dynamixyz is now fully committed to the world of 3D animation, and especially to the entertainment industry, meaning films and games. Among our customers and partners we count Motek, Animatrik and Orange.

You've got a new version of Performer coming out very soon. What is that tool, and how have you pushed it forward?
Performer is Dynamixyz's software solution for video-based markerless facial tracking and motion retargeting. It is constructed as a stand-alone software that can be installed directly in studios, and allow operators and animators to process everything themselves, and in-house. It can process video from existing video capture tools, and interfaces with standard animation tools such as Motion Builder or Maya. The output of the system for an input video is the corresponding animation curves on any type of character rig.

The Performer software has existed for some time, and is now being used in production. The technical core has proved its accuracy and robustness in facial tracking, so for the latest versions we've focused on refining its performance, particularly its processing speed. Another new available technical feature is the motion transfer of eye movements.

The biggest improvement over the last versions, however, is probably how Performer interfaces with existing production pipelines. More standard outputs have been added, such as the C3D format for tracked facial points. We've also worked on the support of rig specialisations such as driven-keys.

How will Performer directly impact developers and the games they make?
Only a small portion of studios have the personnel and equipment to produce performance-based facial animation, let alone at large scale. Performer looks to address that as the requirements in equipment and animation expertise are lower than for other existing solutions.

Facilitating the process of creating performance-based facial animation enables studios of all sizes to produce at competitive costs. This means higher animation quality, and more facial animation in games. The higher-level impact is in a way the ability to create more realistic, compelling virtual characters.

What challenges do you see as key for the facial animation sector to overcome?
As many actors of the games and movie industries relate, facial animation is the next big step. Now this is two-fold; there is obviously the challenge of quality, which so far only a few studios can guarantee, and there is also a challenge of accessibility, meaning that every studio should be able to produce high-quality facial animation. Better accessibility will mean more quality results in movies and games, for the benefit of players and spectators.

Dynamixyz looks to address both challenges. The tools we provide are quality-driven, but they are also meant to combine naturally with traditional pipelines and to be accessible to non-experts.

What lies ahead now is the integration of disparate tools – for facial and body motion capture typically – to achieve the optimal conditions for performance-driven animation. This will clearly mark a step forward in the production of quality animation and making the most out of performance-driven characters.

What is needed to tackle those challenges? Could collaboration be a solution?
Collaboration is definitely the key. As powerful facial animation tools can now be provided by markerless and video-based techniques, whose use is pretty recent in the game industry, there's sort of an adaptation phase, where the integration of those techniques and the more traditional ones needs to be defined and optimised. We are already working on that process with several studios, and we're really glad to be part of those types of collaborations. It really feels like combining complementary skills and knowledge, and creating a synergy achieve the best possible animation quality.

Dynamixyz has stated previously a belief that there is an immediate need to develop statistical systems which can produce good quality, on-the-fly animations. What does that mean?
Indeed, based upon its expertise in the field of facial feature tracking and expression recognition, Dynamixyz has developed a statistical tool making it possible to replace motion capture.

The concept behind it is to learn from a large amount of facial tracking data the facial behaviour of a particular actor in order to be able to produce on-the-fly realistic animations. We call this, an 'expressive space'. It is very straightforward to navigate in this kind of area.

To make up ones mind, you can imagine a plane travelling from one waypoint to another, each being a trend in the facial expressivity. We believe this kind of tool can be a really interesting alternative to use for the video games industry because some games, like MMOs, have a lot of characters, each needing quite a large amount of animation data.

Using middleware like the one we've developed makes it possible to control all these characters realistically and in realtime using only scripts. Moreover, expressive spaces offer a larger scale of expressions, and prevent animations from looking repetitive, adding randomness to the final output.
www.dynamixyz.com

Dynamixyz CEO Gaspard Breton is confident his company's experience in other industries can benefit games makers

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Honey, I shrunk the pictures!

Nikolas Banspach of InnoGames provides a how-to of graphics and animation loading in Flash games, using the developer's Forge of Empires as a case in point for what can be done with a few tidy tricks

PLAYERS EXPECT modern browser games to have increasingly complex game mechanics and high quality graphics.

Thus, at InnoGames we created well over 200 partially-animated buildings for the *Forge of Empires'* city view. Even with these, however, the loading time for those with slower DSL lines or poor quality connections has to remain on a bearable level. Creating a smooth gaming experience was one of the most important requirements for the development team.

Long waiting times at the start or during the game should always be avoided. At the same time, however, the sophisticated optics require a number of bandwidth-hungry bitmap graphics. So how do developers bring this all under one roof?

> ***"If a team is like us and has several hundred graphics for GUI elements, it is important to look early for ways to reduce their weight."***
>
> Nikolas Banspach, InnoGames

We did this by making *Forge of Empires* a modular design. First, only a relatively small main application is started. This in turn signals for the first resource package that includes graphics for the interface and dialogs, which are essential for the game. All other images are retrieved only when needed by the servers, and are mostly stored in resource bundles together. By doing this, one can effectively reduce the number of requests to the server and use the LZMA compression, introduced in Flash Player 11.2. But also entire parts of the program – for example the campaign map and battle are each being put into separate modules – which will only get requested after a corresponding user action.

Despite the abandonment of some features in *Forge of Empires*, such as the rotation of buildings – because of the shadow, buildings cannot be mirrored in the memory that easily – we had to use some trickery to reduce the amount of data.

Over the next two pages I've provided some tips that could be useful for similar projects.

BUILDING ANIMATIONS

The production buildings in *Forge of Empires* are not initially animated. Only when production is started do the little structures come to life: the printer's press jumps into motion and a butcher goes to work. This obviously invites one to simply separate graphics and animations of the buildings. In the first step, we loaded a static graphic for each building.

As an animation format, we used sprite sheets instead of the timeline animation, which is generally more common in the flash world. These included the juxtaposed frames of animation. The advantage of this solution is a higher flexibility of animation speeds, which would not be possible with a frame-synchronised animation. The building itself, however, is no longer included in the sprite sheets, but only the deviation of the pixels to the graphics. In front of the tavern, two very happy visitors were rendered and in the post-processing automatically cropped.

When the buildings and the sprite sheet were loaded, the individual sprites were cut from the sheet. They were then placed over the building and this produced the animation.

SPRITE SHEETS FOR GUI ELEMENTS

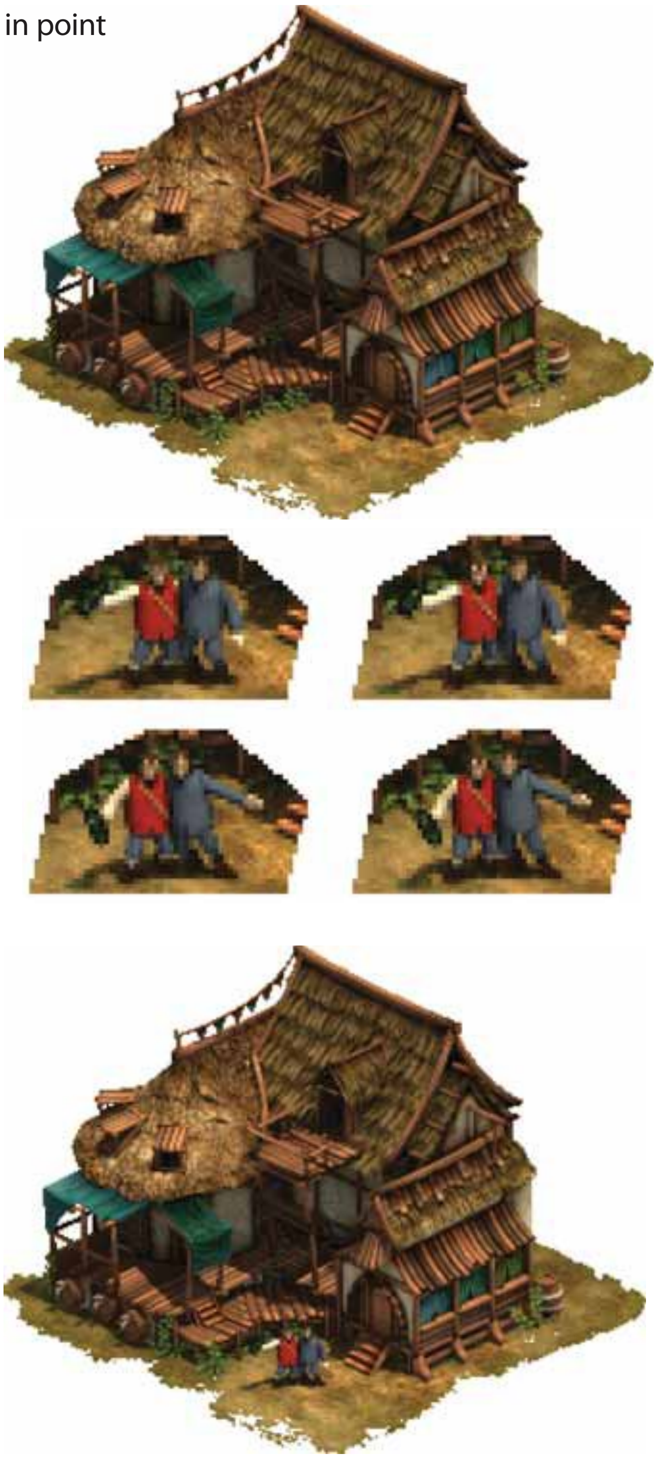
If a team is like us and has several hundred graphics for GUI elements, it's important to look early for ways to reduce their weight and still keep track of the respective images. The individual components for us were therefore also combined to sprite sheets, and our asset management was expanded to include methods to trim them and make the sprites to be available in a definite name. *Figure 1 (next page, right)* shows a sprite sheet for a button. It contains all the relevant states: 'up', 'hover' and 'down'.

Within the asset packages, definite names are being distributed with the use of XML and the cutting is defined:

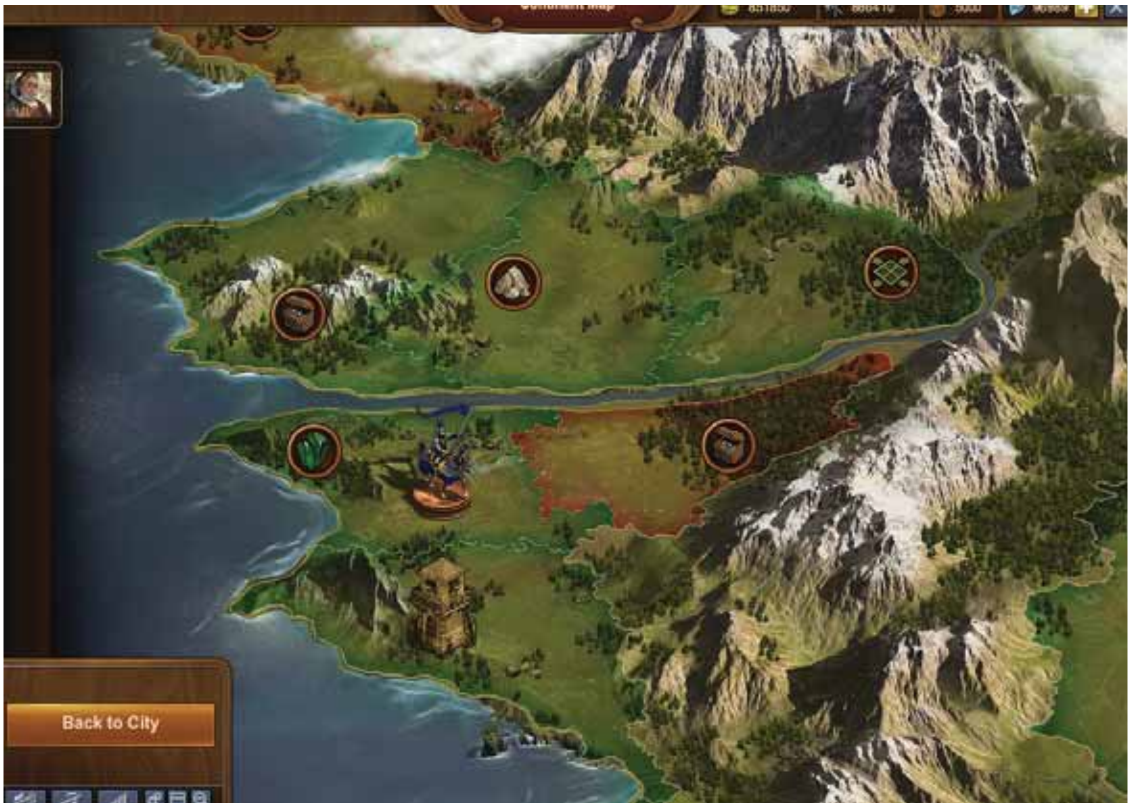
```
image name="plus_button_normal"
src="button_sheet" cropx="30" cropy="0"
cropwidth="30" cropheight="30"/>
<image name="plus_button_hover"
src="button_sheet" cropx="30" cropy="30"
cropwidth="30" cropheight="30"/>
<image name="plus_button_down"
src="button_sheet" cropx="30" cropy="60"
cropwidth="30" cropheight="30"/>
```

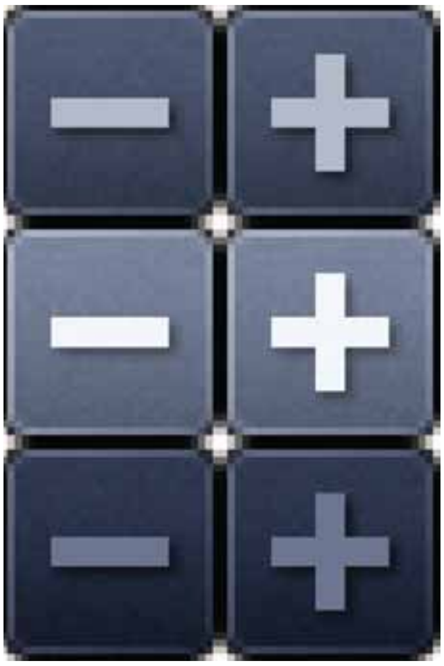
The above is repeated for the minus button.

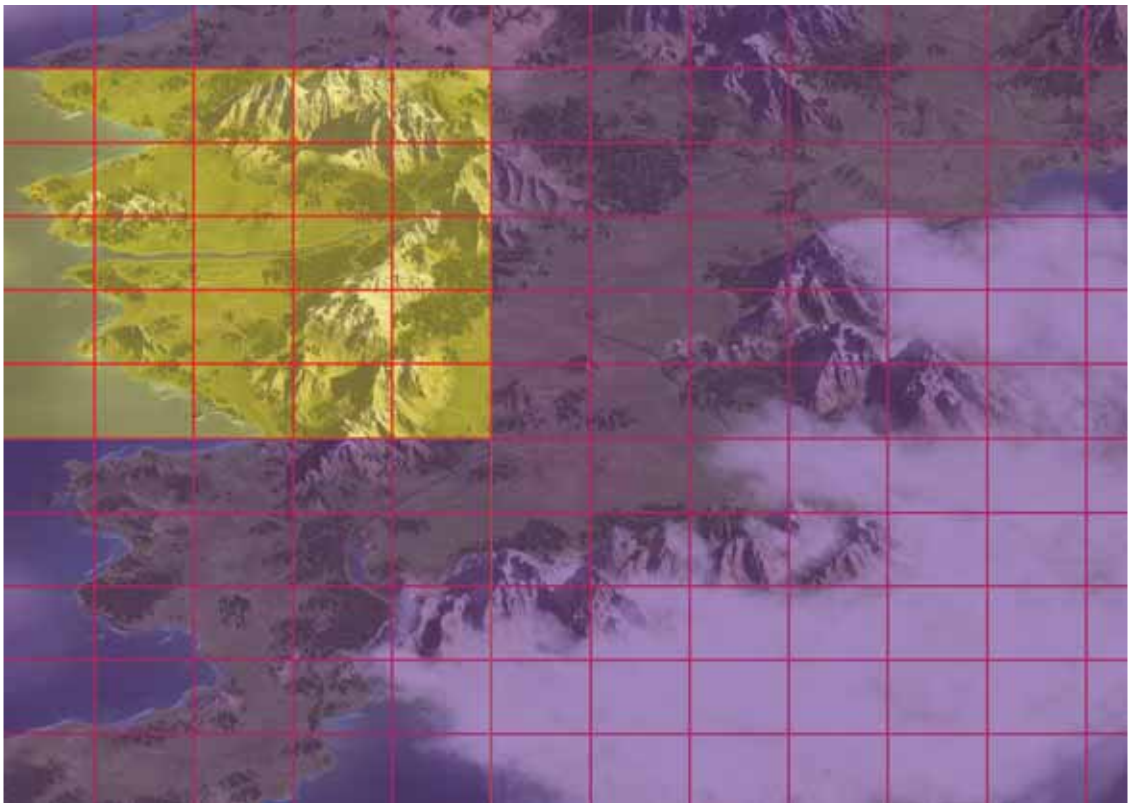
▶



Sprite sheets were used to animate buildings in InnoGames' Flash title Forge of Empires







An example of a button sprite sheet ('Figure 1', top-right), Forge of Empires in action, (top), and the division of the map with the high priority tiles highlighted in green ('Figure 2', bottom)

The central asset manager interprets the XML files and makes the assets available under the name defined by the function getImage.

```
public function getImage (image: String):
BitmapData {
var src: BitmapData = resource.getBitmapData
(image name);
var: int = parseInt (img. @ cropwidth, 10) ||
src.width;
var height: int = parseInt (img. @ cropheight,
10) || src.height;
if (@ img cropx.toString () |!. |!. img
cropy.toString @ ()) {
return src;
}
var cropped: BitmapData = new BitmapData
(width, height, src.transparent);
_tmpRect.x = parseInt (img. @ cropx);
_tmpRect.y = parseInt (img. @ cropy);
_tmpRect.width = width;
_tmpRect.height = height;
_tmpPoint.x = _tmpPoint.y = 0;
cropped.copyPixels (src, _tmpRect, _tmpPoint);
return cropped;
}
```

For performance reasons, the cut Bitmap Data is cached, so the same operations for cutting don't always have to be carried out.

CAMPAIGN MAP

The campaign map turned out to be a particular challenge for us due to its size. Loading the campaign map at full resolution was out of the question, because otherwise a significant break would occur in which players could not interact with the game.

A high quality of graphics on one hand and fast loading times on the other seemed to be near impossible. However, to ensure both, we chose a multi-step approach. First, a highly compressed image is loaded, which is additionally scaled down by a factor of five. After loading, it is scaled up again to its original size, with smoothing activated and displayed to the user. From this moment on, the user may interact with the game.

Now the high-resolution campaign map is loaded. It was previously cut into 110 pieces, however, and to quickly proceed to a higher quality of representation, the tiles visible on the screen are loaded first.

In the excerpt shown in *Figure 2 (left)*, these are only 25 of the 110 tiles, which are initially loaded with a high priority from the server. Once the graphics are available, they are displayed on the client.

Only in the last step, the remaining parts are loaded, so that the user receives high-resolution graphics even when scrolling the campaign map.

Many of these techniques only have a small effect if taken individually. With combining them, however, one succeeds in offering a smoother gaming experience to players. Through skillful management of the graphics to be loaded, developers also lay the foundations for further development of the game.

Nikolas Banspach has developed computer games full-time since 2007; first, at kr3m Media in Karlsruhe, Germany, and since early 2011, at InnoGames in Hamburg. He has been working with the *Forge of Empires* team from the start of the project and focuses on frontend development.
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UBM TechWeb

KEY RELEASE

Will Freeman takes a look at the latest update to the Enlighten illumination tool

WHAT IS IT? A tool designed to bring global illumination to realtime gaming
COMPANY: Geomerics
www.geomerics.com

JUST A FEW years previously, the idea of a lighting technology that could satisfy the wants of both mobile and console teams seemed to many like a pipe dream.

And yet, the industry today has exactly that; a solution scalable to almost every active platform.

Lighting specialist Geomerics is particularly proactive with regularly updating its Develop Award-winning lighting technology Enlighten, but the recent 2.14 release marks an especially significant upgrade to the tool.

The release marks the point where Enlighten can now serve the aforementioned spectrum of games and platforms dominating today's games industry. The latest version of the tool offers baking technology for teams who only need static lighting, new runtimes for iOS and Android devices, new dynamic features for next-generation runtimes, and substantial improvements to authoring and workflow.

A LONG EVOLUTION

"It has been a lengthy process to evolve the product to this point," reveals Geomerics founder Chris Doran. "When you start out its easy to think: 'I have a clever algorithm. All I need to do now is write some code and start selling.' But you soon realise that game development is far more complex."

And from Doran's perspective it is clear that the era when someone can come up with a better algorithm and immediately turn it into a product is now a thing of the past.

"The real challenge in middleware is in taking a solid R&D base and converting that into a product that can be used by all games developers in all engines and all types of games," he explains. "That requires serious software engineering effort, and a real focus on what customers require and how they actually use your product. No two customers are using Enlighten the same way, and every game developed using Enlighten has a unique look."

As a result, Enlighten has evolved into a tool with an ambitious and varied feature set, with its creators focusing on ever-increasing levels of dynamism in the runtime, and constant refinement and improvement of the workflow.

At its conception the tool was designed to be real-time in the engine from day one, and the assumption was that most developers used their engine as their world editor, so their artist would immediately have access to real-time lighting in authoring.

However, having noted that not every studio works in such away, Doran and his team have today crafted a piece of tech that strives to satisfy both traditionalists and those with a more DCC-oriented workflow.

The latter can now take advantage of a full plug-in to Maya so that they can immediately see their assets lit with Enlighten without leaving Autodesk's tech.

"This uses the same runtime technology as the game engine, so the artist can be confident that their assets will appear the same in-game as they are in the Enlighten viewport," says Doran. "For some developers this is a considerable boost to productivity."

> ***"No two customers are using Enlighten the same way, and every game developed using Enlighten has a unique look."***
>
> Chris Doran, Geomerics

"Authoring and productivity are massively important to us at Geomerics, but the single feature of this release that has generated the most attention is the mobile runtime," adds Doran. "I don't think anyone was expecting to see global illumination running on a tablet any time soon, but that is precisely what we have demonstrated. Enlighten is practical and affordable on today's mobile devices. And because the runtime is architected to run on the CPU, it does not put any stress on the GPU,"

CPU VERSUS GPU

Harnessing the CPU marks a smart move by Geomerics, and should serve as an enormous benefit to games developers, because the GPU is arguably the most challenging aspect of mobile development.

While mobile GPUs are improving at a staggering rate, developers have a taste for exploiting every available drop of GPU resource, and are as such not keen on middleware that restricts their GPU budget.

"The improvements to authoring will significantly benefit artists," continues Doran on the matter of updates inherent to 2.14. "The new plug-in to Maya ensures that artists can now work with Enlighten within Maya, so they no longer have to wait to import their assets into the game engine.

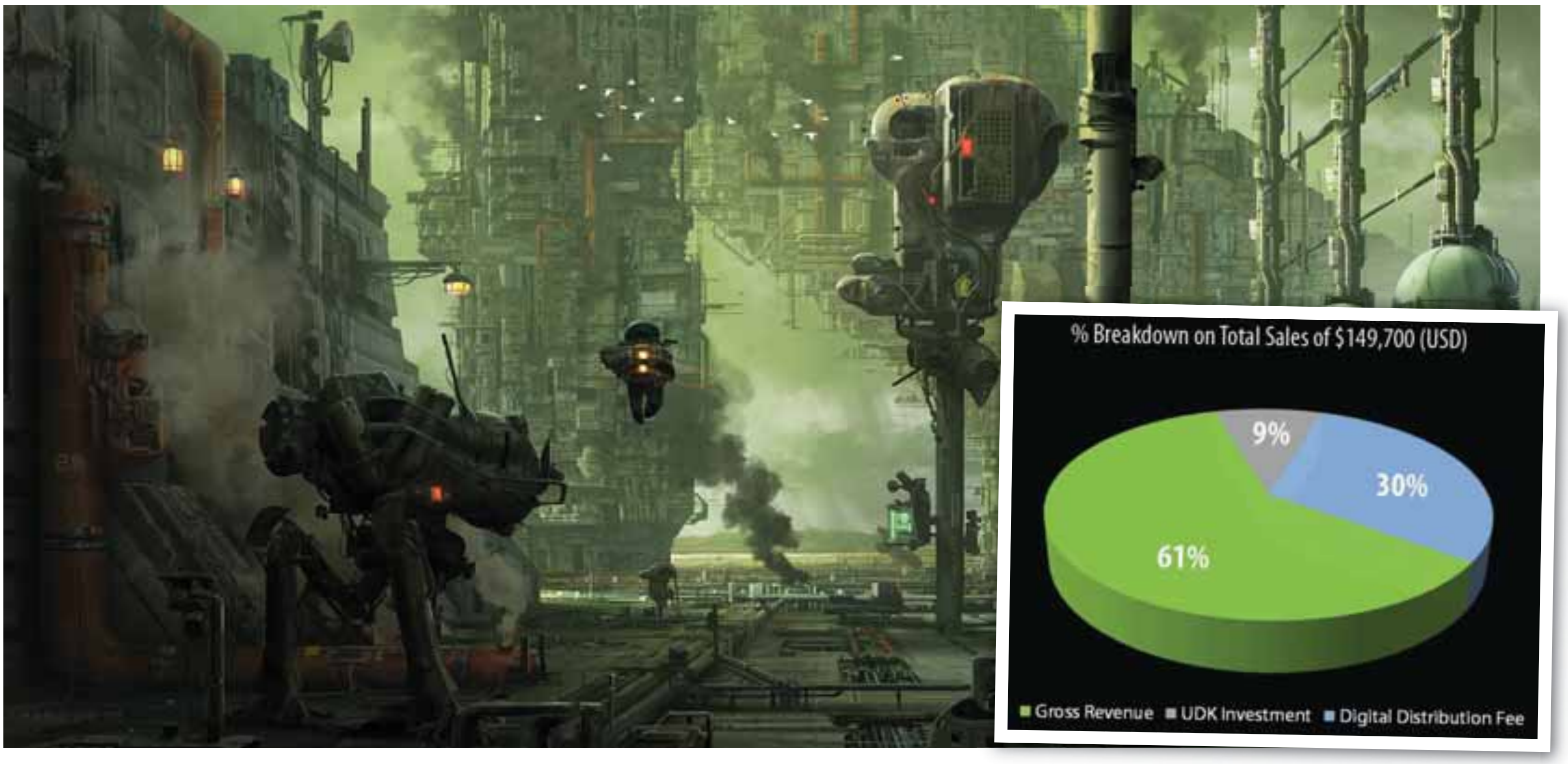
"This is a considerable saving as they now can be sure about the final in-game appearance of an asset before they have to commit it. For customers using Enlighten for baking they will also be blown away by the productivity of our tools.

"All lighting updates are fully dynamic, and built on our award-winning runtime technology, so now 'baking' means nothing more than saving out some results into textures."

Geomerics work-in-progress next-generation tech demo gives a taste of the future of games lighting (main image). Above: Geomerics founder Chris Doran

EPIC DIARIES

Mark Rein looks at why more independent developers are turning to UDK



The team behind Hawken (main image) moved comfortably from UDK to UE3. Inset: An example of a UDK project royalty structure

THERE'S NEVER BEEN a better time to check out the Unreal Development Kit, the free edition of Unreal Engine 3.

It's always been free to use until you're ready to deploy a commercial product, and even after the one-time $99 studio fee, Epic doesn't take a royalty until you pocket $50,000. We also regularly update UDK, and never charge for upgrades.

Here is one example of how the commercial UDK back-end royalty structure works. Say you sell 15,000 copies of a $4.99 app, and your digital distribution platform takes 30 per cent of total retail sales to $74,580, leaving you with $52,395. Epic takes 25 per cent of the net amount over $50,000, or $598.75. That means you keep $51,796.25 or 69 per cent of the total retail sales. Epic's total cut at this point is $697.75 or one per cent of gross revenue.

In a second example (see chart), sales double and 30,000 copies at $4.99 generates $149,700. You have $104,790 after digital distribution fees. At this point, 61 per cent of retail sales or $90,933.50 stays with you, the developer, and the total UDK investment comes to $13,796.50 or nine per cent of net revenue.

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THE COMPLETE PACKAGE

UDK provides access to the full UE3 feature set, including the Unreal Editor and its robust suite of tools, such as the Unreal Kismet visual scripting system, Unreal Matinee cinematic toolset, Unreal Cascade particle effects, Unreal Landscape terrain editor and Unreal Lightmass global illumination.

Also included is UE3's navigation mesh AI system, the Unreal skeletal animation system and other tools that would normally cost money to license or require significant internal resources to build.

UDK also ships with hundreds of thousands of dollars' worth of industry-leading middleware technologies, including the full Autodesk Scaleform GFX user interface software package, NVIDIA PhysX and APEX support, SpeedTree foliage editing, FaceFX facial animation, Bink Video, RealD stereo 3D features and more. All of this is available in the base licensing fee. Epic absorbs technology integration costs to ensure developers only gain from our work with great partners.

UDK scales from lightweight mobile experiences to high-end PC gaming. After Epic demonstrated its next-gen *Samaritan* demo last year, UDK began shipping with DirectX 11 support, so anyone can use UE3 for high-end rendering, tessellation and beautiful post-processing effects.

TREND SETTERS

Every day, developers release UDK projects without needing full source UE3 access. Some studios, such as *Hawken* developer Adhesive Games and *Dungeon Defenders* creator Trendy Entertainment, start out using UDK and then transition to a UE3 deal.

"By using UDK we were able to not only quickly create a prototype for *Hawken*, but also implement the majority of our gameplay and other game features," said Jon Kreuzer, technical director at Adhesive Games. "When the time was right we were able to easily transition to the full Unreal Engine license. Epic has been very helpful to us in our quest to achieve our creative vision for Hawken."

If your needs require full source code access, then you can contact us at licensing@epicgames.com. We'll help you get started and find the business terms that are right for your team.
www.udk.com

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Canadian-born **Mark Rein** is co-founder and vice president of Epic Games, based in Cary, NC. Unreal Engine 3 has won eight Game Developer magazine Front Line Awards, including entry into the Hall of Fame. Unreal Engine 3 has also received four consecutive Develop Industry Excellence Awards. Epic is the developer of the bestselling Unreal, Gears of War and Infinity Blade series of games. Follow @MarkRein and @UnrealEngine on Twitter.

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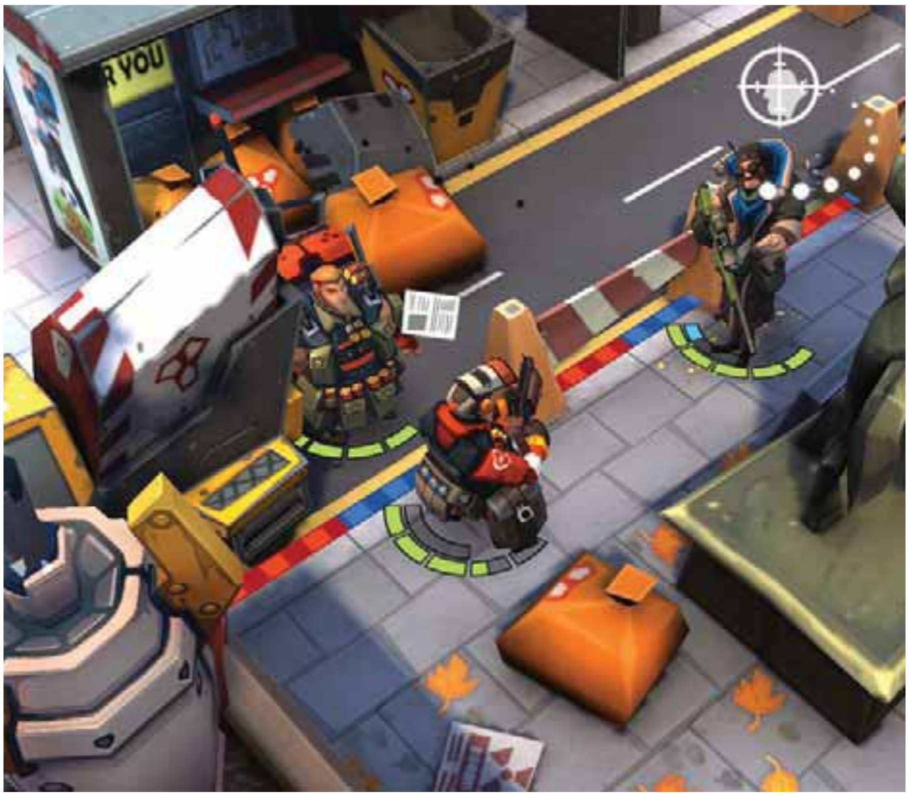
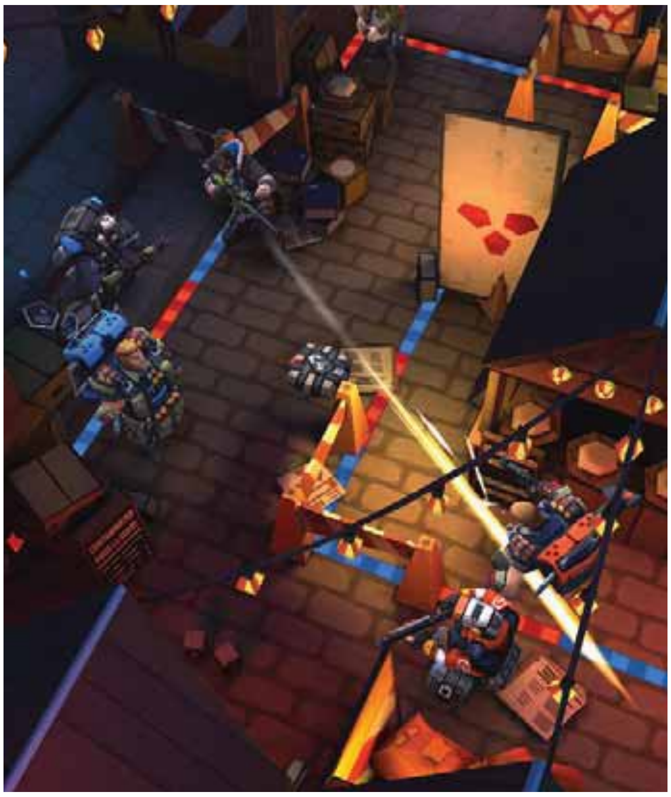
UNITY FOCUS

Splash Damage on why Unity became their engine of choice for RAD Soldiers

RAD SOLDIERS
Developer: Splash Damage/WarChest
What is it? A turn-based asynchronous free-to-play mobile RTS
www.warchestgames.com/games/radsoldiers





Asynchronous action-RTS RAD Soldiers (main images), and Splash Damage CCO and co-founder Richard Jolly

ASYNCHRONOUS GAMING as a concept is not especially new, but of late the multiplayer model has entered a new era of acceptance.

OMGpop's sensationally popular picture sharing title *Draw Something* can take much of the credit for cementing the fundamentals of the asynchronous concept in consumers' minds, yet it is but one of many recent releases to highlight the potential of turn-based mobile gaming.

And now a new contender is ready to tempt the game playing public with asynchronous action; namely the Splash Damage and WarChest-developed turn-based strategy shooter *RAD Soldiers*.

And WarChest – part of the family of games companies that also includes parent studio Splash Damage and online services provider Fireteam – has opted to adopt Unity as its engine of choice for *RAD Soldiers*.

"*RAD Soldiers* is our first outing on mobile, so it was really important to us to be able to hit the ground running," confirms Splash Damage CCO and co-founder Richard Jolly. "We evaluated a number of different engines, both on feature sets and cost, deciding that Unity outperformed them in pretty much every regard. Testament to this is that we were able to pull a game prototype together for *RAD Soldiers* in the space of a week and have it running on an iPhone."

FAST WORK

Already Jolly has touched on one of Unity's most famous strengths – its knack for rapid prototyping. However, the ability to quickly generate working models was not the engine's only feature that proved essential to *RAD Soldier's* creation.

"The Profiler was great for helping us track down performance issues, and it allowed us to get *RAD Soldiers* running as efficiently as possible on lower spec hardware," explains Gordan Biggans, lead core tech programmer at Splash Damage. "It has also helped us look at memory issues, letting us know exactly how it was being used and enabling us to optimise *RAD Soldiers'* download size – a key element of mobile games development."

> ***"We evaluated a number of different engines, deciding that Unity outperformed them in pretty much every regard."***
>
> Richard Jolly, Splash Damage

Elsewhere, Unity's scripting system proved equally popular with the WarChest and Splash Damage staff looking for a sleek, efficient way to code the game.

"Using Mono Develop as the heart of Unity has made it really easy to get things done quickly, particularly for prototyping ideas," Biggins confirms. "C# is something we've been looking forward to using for a long time. It's so much cleaner, elegant and easy to use."

A FIRST TIME FOR EVERYTHING

Of course, as with any game's development, there were challenges for the *RAD Soldiers* team to overcome, especially considering how many firsts the team had to tackle.

The title is Splash Damage's debut outside the first-person shooter genre, and in being a turn-based asynchronous free-to-play smartphone game, embraces many concepts from numerous new realms of games design.

Of all those elements, the multiplayer system was perhaps the most complex to implement, and demanded the creation of a robust backend that could support a multitude of simultaneous games.

"In the past, Splash Damage has always outsourced this critical component to third-party companies," explains Jolly. "Rather than reinventing the wheel every time, we decided to create a new company called Fireteam to build a suite of tools for us that we'd then be able to re-use and improve. *RAD Soldiers* is the first game to use Fireteam's multiplayer suite and it's almost laying the groundwork for future Splash Damage titles in that area.

"Being able to operate the games we create is a first for us and we're very excited about the possibilities this offers."

Fortunately for Jolly and his team, Unity proved the ideal solution for all the challenges *RAD Soldiers* threw at its creators, and the result is a visually bold game with ambitions of matching the previous poster children of asynchronous entertainment.

But wrapping *RAD Soldiers* doesn't seem to be the end of Splash Damage and WarChest's time with Unity, as Jolly reveals.

"We're really looking forward to Unity 4.0 and beyond," he says. "Two things stand out: the new animation tree system will allow us to have smoother animation transitions, and our UI guys can't wait to get their hands on the new User Interface system."

HEARD ABOUT

John Broomhall talks to Earcom's Paul Weir about the potential of generative audio

Generative audio
Expert: Paul Weir
Earcom / Microsoft Games Studio /
The Sound Agency
www.thesoundagency.com

WHAT DO Paul Weir's video game projects have in common with a Scottish airport, a Middle Eastern Bank and a rather famous London department store?

The answer is generative music – or as Weir prefers – 'emergent music' – a randomised replay of very small musical components according to a set of pre-defined rules which can produce a flexible soundscape.

"Games are a world of opportunity for generative music – you remove the limitation of loops. And because it's 'real-time', you can control and construct it on-the-fly, building musical intensity and even changing tempo and key according to a map of allowed relationships," says Weir, who currently serves as digital music consultant at audio design outfit The Sound Agency, audio director at Microsoft Games Studio, and also founded games specialist Earcom, providing audio for the likes of *Rogue Ops*.

"It can respond to game variables and locations without the player ever being conscious of the organic changes."

MIX AND MATCH

Weir explains that the approach works best as 'ambient' background material, and in games it's really nice to mix and match between generative and pre-rendered content – to dramatically shift from something that's structurally ambiguous to a more conventional linear piece. On the generative side, you can easily apply pieces of music to locations and then set rules for interpolating from one piece to another as the player moves. It's really quite powerful.

"The more granular the elements, the better," Weir continues. "A lot of the common control elements are the same as with sound effects – shaping how often sounds from a group will play, their density, pan and volume. Sitting on top are the more musical controllers such as key and tempo. Simple musical rules can create surprisingly pleasing musical pieces if fed with the right sounds."

When composing generative music you have to work backwards, in that you need to think of the individual elements like little snapshots and move them around in your sequencer to get an idea of how they will combine together. If your piece is heavily dependent on structure, then you're going to go horribly wrong.

"Timbre is really important – how the sounds co-operate together sonically within a looser structure – not dissimilar to Brian Eno's early pieces like *Apollo* or Harold Budd's music. In the same way that Eno used long tape loops, you lose control in some respects, but you're forced to be creative in new ways, thinking less about progression and more about tone and atmosphere."

Weir believes these techniques are a very useful alternative to conventional layered loop-based music approaches for scenes of indeterminate length in games, where creating and producing a ton of music content to cover ambient background is both time-consuming and expensive. However, he has also realised the potential for the same tactics in other real-world commercial applications whilst working on audio branding projects with The Sound Agency.

Paul Weir's wealth of experience with games audio has even seen him create in-store soundscapes for retail stores

> ***"Generative audio can respond to game variables without the player ever being conscious of the organic changes."***
> Paul Weir, Earcom

BRAND AWARENESS

"There's an obvious crossover between generative and ambient music, and The Sound Agency's CEO Julian Treasure has a strong interest in the psychoacoustic effects of music," states Weir. "The concept of generative was seen as esoteric a few years ago, but now we sit in the boardrooms of major brands like Tesco, BAA and Volkswagen, happily talking about it as an entirely viable, valid option."

The Sound Agency usually carry out an 'acoustic audit' of a venue first, then will offer acoustic treatment suggestions often along with how new sound can be added to the space to make the consumer experience more pleasurable and relaxing.

"Adding a generative soundscape via our Ambifier system has the advantage that we can respond to real world inputs, for instance, customer noise level, or market research feedback," Weir continues. "In some instances, you might want the soundscape to change according to time of day or according to the number of people in the space. At one airport our generative music in retail outlets helped increase takings by up to ten per cent, indicating that if people feel happier, they spend more.

"In a Californian city where a generative birdsong soundscape was deployed via some 70 speakers around the streets, it's even apparently helped reduce crime. Our tech is networked so we can make changes remotely, and our wider team can all download proposed generative pieces I've put on the server and leave them running for hours in their own offices for testing purposes.

"The children's department of the world-renowned store, Harrods, is the latest venue to play host to the Ambifier system. From early in the discussion when the new models to form the installation were being discussed, it was decided to explore the possibilities of bespoke sound design."

" We can install it, see how it feels and because it's 'unfinished' we can adapt and tweak it. We'll change the density of it over the course of the day depending on footfall. It's the shaping of the experience that's key.

"Actually, it's going to sound rather like a video game."

John Broomhall is an independent audio director, consultant and content provider.
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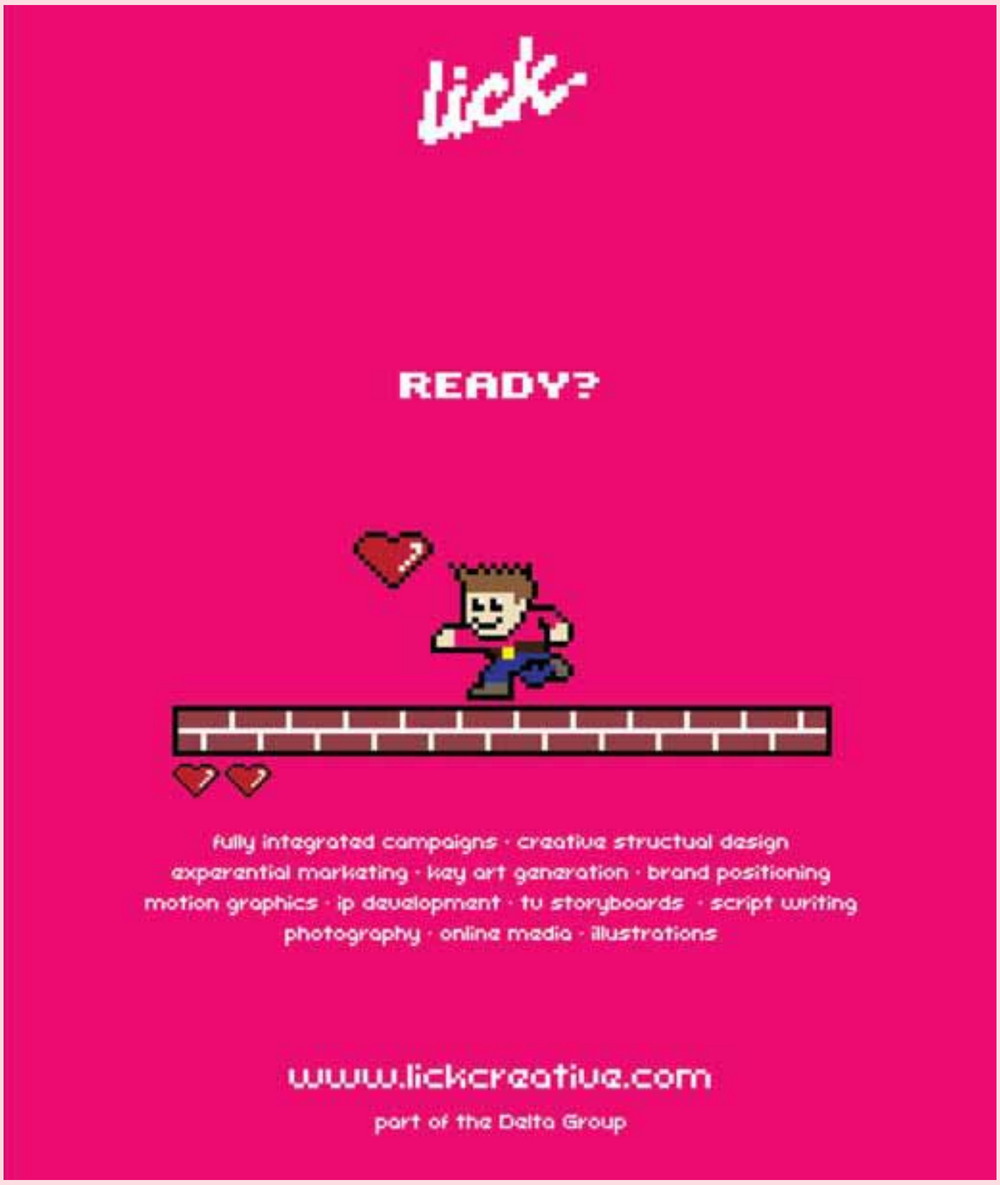
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RECRUITER HOT SEAT

We ask Eutechnyx's **Erin Turnbull** what she expects from aspiring developers and the dos and don'ts of interviewee etiquette

What separates Eutechnyx from other games developers?
We are in charge of our own destiny – we create original IPs that we own as well as having strong, strategic relationships with some of the world's leading brands, such as NASCAR, and the world's top car manufacturers.

Eutechnyx celebrates its 25th birthday this year, so as well as stability we've proven that we are experts at rapidly adapting to changes in the volatile games industry.

The launch of *Auto Club Revolution* in 2012, our freemium online game, has also allowed us to venture into online publishing alongside our console development activities.

What perks and benefits are available to employees working at the studio?
First-class training and career progression in a high achiever atmosphere – it's not for everyone, but if you think you are good there is no better place to get rewarded for your talents.

Working with the hardware manufacturers on all of their latest toys; great locations – the hugely underestimated North East of England, and the über-cool Shoreditch in London.

Plus all of the usual stuff you would expect from an Investor in People employer, such as competitive salaries, a company car scheme, management training, worldwide travel, flexi-time, private healthcare, relocation packages, staff parties and so on.

What should aspiring developers do with their CV to get an interview?
Prove that you are willing to go above and beyond what is expected.

A demo that you have tested on several machines or a showreel of your work is essential – a CV just doesn't cut it anymore. Be prepared to highlight and showcase key experience and passion for your chosen field.

A YouTube upload of your work is also a great tool to make sure your skills can be seen by everyone in a matter of minutes.

Send your CV directly to Eutechnyx – direct CVs always get priority and get you a better salary deal as agents don't take a share of your cash.

Who is the best interviewee you've ever had and why?
Someone with a brilliant CV and demo came in and said to Brian Jobling: "My proposal is that I'll join Eutechnyx for no salary, on the condition that I only work for you – the CEO. You can then pay me based on what I achieve for your company".

It was a strong pitch by someone who realised they had a lot to offer. Needless to say they came on board and have developed their career with us and become one of the CEO's most trusted development managers.

So who was the worst?
Be sure to switch off your mobile phone. One candidate had a full on conversation with his wife regarding their shopping plans whilst in an interview with both our CEO and COO. He didn't get the job.

BIO
Name: Erin Turnbull
Title: Head of Recruitment
www.eutechnyx.com

> ***"A demo that you have tested or a showreel of your work is essential – a CV just doesn't cut it anymore."***
> Erin Turnbull, Eutechnyx

GET THAT JOB

Development specialists offer advice on how you can score that promotion

THIS MONTH: NETWORK SYNCHRONISATION ENGINEER

"Network synchronisation is such a fundamental aspect of games at Rare that we typically look for people with experience.

"If you haven't got a shipped a title yet, capture attention by providing a simple, one-click demo that demonstrates all aspects of a networked game.

"Once invited to interview, come prepared: you may be asked about completely different networking models, so study other games to rule out any chance of being caught on the back foot.

"Crucially, make sure you've warmed up your C++ skills. At Rare, you will often receive homework before the interview and then be asked to code with the interviewers once there."

Bjorn Toft Madsen,
Software Manager, Rare

SIX-SECOND STUDIO SPOTLIGHT

- Caperfly is a brand new studio founded in 2012 by ex-Codemasters veterans: Gavin Cheshire, Mark Boote, Bryan Marshall and Rachel Weston
- Marketing VP Guy Pearce says the studio is motivated by technology that drives interactive entertainment
- Its aim is to create 'unique' ideas that will deliver high-quality titles on iOS, Android and smart TV platforms
- The studio is based in Leamington Spa and is currently home to ten employees. It's recruiting now
- Initially, it wants to develop apps with gameplay driven by real world content, which hinges on social connections and cultural awareness
- Caperfly plans to constantly improve its technology in order to grow a loyal fan base for its titles, starting with smart TV games

What advice would you give to jobseekers and career-movers for a successful interview?
The biggest mistake is not bothering to learn about Eutechnyx – we only want passionate, proactive people, so if you can't be bothered to play our products and understand our business this says a lot about your real interest in the position.

Be prepared to spend some time with us – we'll want different people from all over our business to meet you and this takes logistics to organise.

And do the basics well – check on travel arrangements, arrive on time, know your CV and be prepared to talk through your demo and showreel.

And if at first you don't succeed, don't be downhearted – some of our best employees didn't get in first time round but proved that they had the tenacity to keep on trying to achieve their goal.

How many people are you currently looking to hire? And from what specific fields?
We are busy, busy, busy at the moment, recruiting in both the North East and London.

You may have seen in the press that we have recently had a Regional Growth Funding award, where we are looking to recruit about 180 staff over the next three years.

Our website www.eutechnyx.com is the best place to keep updated on new vacancies.

Currently opportunities include: web, network and server programmers for *Auto Club Revolution*, as well as programmers experienced in browser, iOS, Android and tablet.

Plus, console development programmers for new and existing hardware systems, especially those people looking for career development in programming management; and several roles in our marketing and publishing team for *Auto Club Revolution* and future titles.

Don't also assume all of our vacancies are in racing and driving – we also have the action adventure game *Ride to Hell* in the works.

Do you think games development education in the UK is currently good enough?
Eutechnyx believes strongly in our 'don't complain – do something about it' mantra.

We have always worked hand-in-hand with the best universities, offering syllabus advice, external examiners, studio tour days, placement schemes and guest lectures. There are some fantastic universities offering first-class courses that we work with very closely on our award-winning Graduate Academy 'Level Up' scheme.

Our advice is to always research any proposed university course well. Does it have examples of graduates working in the industry, do the modules and opportunities offered match your expectations, and does the games industry actually use the languages being taught?

You are paying a lot of money for the courses so ensure that it will deliver on your investment.

NEW STUDIO ALERT!

FORMER STAFF OF EA, PopCap and Atari have formed a new studio together in Dulin, Ireland.

Digit Game Studios, which has already become the country's largest independent studio, was set up about eight months ago.

Its founding members include former Jagex management team member Richard Barnwell, Atari and Hasbro marketing director Martin Frain and PopCap mobile QA lead David McGovern.

Barnwell, the studio's CEO, said he and his fellow co-founders were attracted to Dublin because of the keen interest they received from government agencies and the access to a plethora of talent, the large web companies and middleware developers who preside there.

Digit Game Studios will focus on creating and publishing original IP for multiple platforms.

"We were talking to people in the UK and their excitement around new tech start-ups just wasn't the same," said Barnwell. "The people we were talking to just weren't really getting behind it.

"In Ireland, as soon as we started talking to people and showed them what we wanted to do, we had double the agencies wanting to sign.

"We were very lucky. We had quite a few different offers from interested parties but the Irish ones moved fastest."

Digit received more than £1m during its seed funding round, a significant amount for a fledging start-up.

"We chose Dublin because of the ability to access best-in-class talent, the great support from Enterprise Ireland and the general buzz around the cities start-up scene," said Barnwell.

"We hope to hire locally and to attract some top-class people from around the games world."

MOVERS AND SHAKERS

This month: Valve, Turbulenz, Mind Candy and Reloaded Productions

VALVE ■ CLINT HOCKING has taken a job at Valve, according to a Twitter update.

He recently announced his departure from LucasArts, and said he had found work elsewhere, but did not say where.

Hocking broke his silence last month and teased his new job at the studio behind *Half-Life* and *Portal* in a Twitter post showing his son playing on the company namesake in the lobby of its Washington office.

The former Ubisoft employee worked on the original *Splinter Cell*, and served as creative director for the sequel *Chaos Theory*. He is also known for game design on *Far Cry 2*.

Hocking joined LucasArts in 2010.

TURBULENZ ■ Internet technology company Turbulenz has hired two former Lionhead staff, **ADAM LANGRIDGE** (left) and **ROB WYLE**.

Langridge and Wyle were previously lead gameplay programmer and lead designer respectively, working on *Fable: The Journey* for Xbox Kinect.

Langridge will be senior engineer. His career in the games industry began at Bullfrog, where he was an artist. Later, he joined Lionhead where he worked on *Fable* and *Black & White*, as well as experiments, like *Milo and Kate*.

Wyle is senior designer. Before joining Lionhead, he poured his passion for game design into various titles at Big Park Studios, Ubisoft Vancouver and EA Black Box, where he began his career working on *Need for Speed: Hot Pursuit 2*.

At Turbulenz, they will be working on the studio's first internal game and progressing its work on HTML5 research and development.

"We are super excited to welcome two world-class game developers to the Turbulenz team," said Turbulenz COO Gavin Shields.

"Adam and Rob have incredible pedigree and to have them heading up our first internal game team is a huge boost for us.

"Of course, we had to first convince them that HTML5, and Turbulenz in particular, represents a huge opportunity for developers. But once they saw what we have coming, they were quick to jump onboard."

MIND CANDY ■ Moshi Monsters developer Mind Candy has hired ex-Playfish exec **KEN WARD** as its new director of talent.

Ward, who has assumed the newly formed role, is now responsible for directing the outfit's internal recruitment team, and will further focus on building the studio's employment brand and talent acquisition strategy.

"Mind Candy is an incredible company," said Ward. "The chance to help build such an exciting vision was too compelling to pass up. We have a talented, passionate and committed team and I'm thrilled to help build upon such strong foundations."

Mind Candy COO and CFO, Divinia Knowles, added: "We're delighted to have Ken on board, he brings a wealth of experience to the role following his years at Playfish and has made a great impact on the business since joining."

Prior to joining Mind Candy, Ward served as people operations director at Playfish. He has also held roles at Skype and a number of financial bodies.

RELOADED PRODUCTIONS ■ MMO publisher Reloaded Productions has appointed former Realtime Worlds director of IT, **MICHAEL BONIFACE**, as its new European managing director.

Boniface, who has been promoted from his role as general manager, will be responsible for the company's business operations across Europe and increasing the publisher's presence in Asia and Latin America.

In his previous role at the company, Boniface led the management of the redesigned free-to-play title *All-Points Bulletin: Reloaded*.

Boniface will be based in GamersFirst's European headquarters in Edinburgh, Scotland.

"I am delighted to be working at a new level with Reloaded Productions during a very exciting time for the company and the wider games industry," he said.

"Reloaded's European operation has expanded rapidly over the last year to accommodate the huge growth in online gaming, increasing numbers of players and new opportunities worldwide to bring our games to entirely new markets.

"We have ambitious plans for the future, which include helping other companies to use our technology, experience and expertise to bring their games to a huge global audience."

Boniface joined Reloaded in March 2011, after leaving Realtime Worlds, the original creators of *APB*.

His background is in technology and IT, which has enabled Reloaded to make strong strides in the free-to-play market as it grows and evolves.

Reloaded Productions will continue to adopt new business models, explore new areas of gaming and find new distribution channels in order to attract increasing numbers of players from new markets worldwide.

Service & technology recruitment hot seat

We speak to Epic Games' recruitment manager **Tim Johnson** about what it takes to join the engine maker's ranks

What makes Epic different from other game engine companies?
At Epic we make amazing engine technology as well as amazing games. Because our games drive our engine tech, whatever it is we're working on has an impact on the engine. There aren't many, if any, development studios where you can see pieces of systems you helped create used by thousands of other developers in hundreds of games.

What benefits do you offer your employees at Epic?
We cover 100 per cent of all benefits for employees and their families. This extends to things including medical and dental insurance, life insurance, a $401k retirement plan with a generous match and profit sharing component, holiday or sick leave, flexible hours, a one-month sabbatical after seven years of employment and a very generous bonus plan.

With Unreal Engine 4 on the horizon, are you looking to expand?
We're always hiring at Epic, and that certainly pertains to phenomenal artists and programmers of all disciplines. We're currently looking to expand our production and marketing teams at our headquarters in Cary, North Carolina. And we're also recruiting programmers and artists for our other studios, such as Chair, Epic Games Japan, Epic Games Korea and People Can Fly.

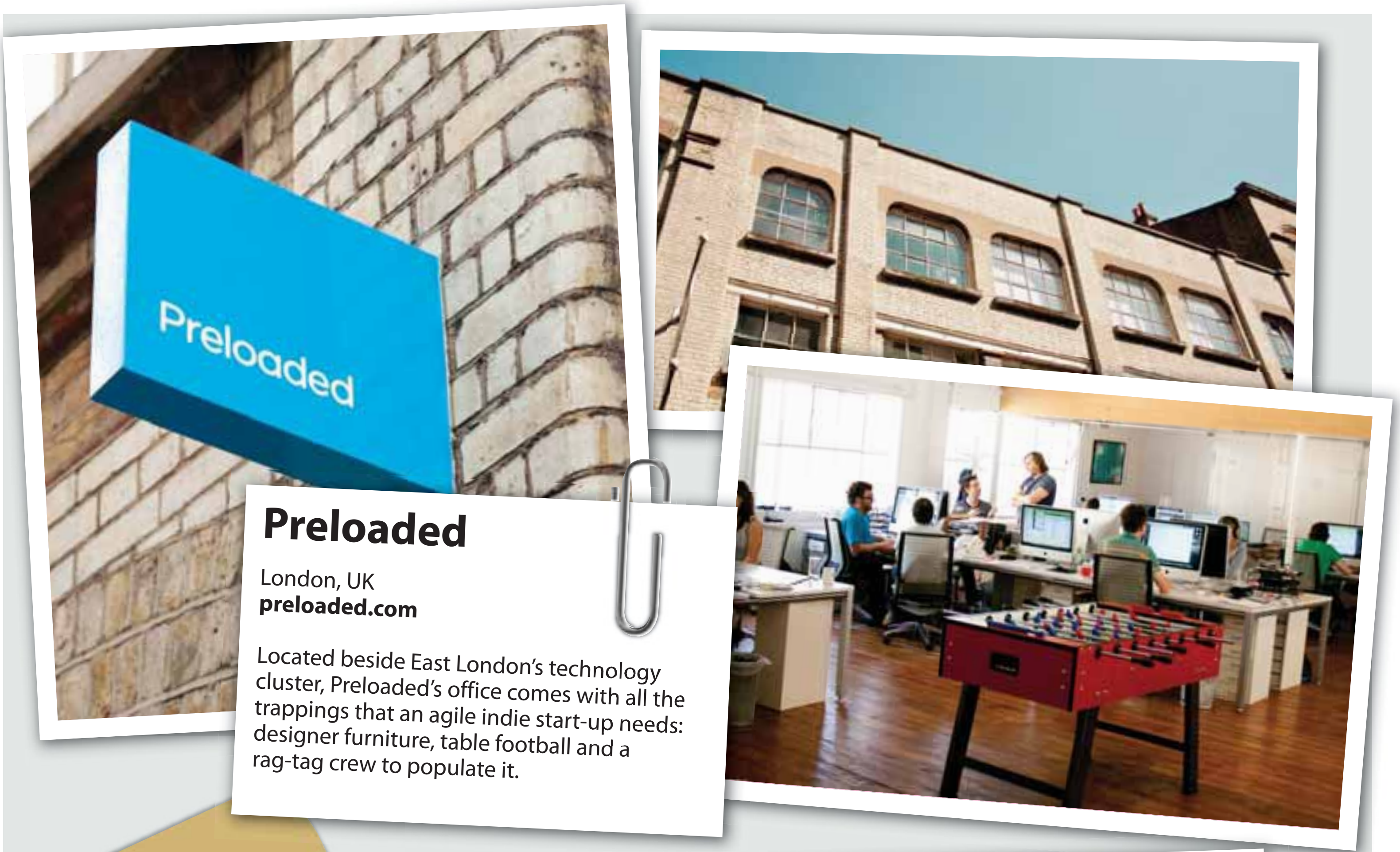
Why go for a career in game engines rather than development?
Our games drive our engine and tools development. Working at a company that makes both awesome games and engine tech is an opportunity for everyone – artists, designers and programmers alike – to be on the ground in helping to shape the next generation of games, and have a huge influence on where the industry goes.

What advice can you give for a successful interview?
First, be yourself. Employers want to get a good idea of who you are and what it will be like to work with you. Be ready to meet with lots of different people and talk about what you can bring to the table. We want to hire people who really want to work for Epic, so tell us why you want to.

Be ready to talk about why you want to make games. Don't be afraid to display your passion, and again, be honest about what makes you excited as a developer. Don't tell us what you think we want to hear, tell us what you think. A big part of the reason we're going to hire you is because we think you're going to make us better. Make sure you can talk about why having you on the team will benefit us.

Also, be ready to ask questions. While it's important that we like you, it is equally important that you'll be happy here.

THIS IS WHERE WE WORK



Preloaded

London, UK
preloaded.com

Located beside East London's technology cluster, Preloaded's office comes with all the trappings that an agile indie start-up needs: designer furniture, table football and a rag-tag crew to populate it.

LEVEL 5
LEVEL 5

Level-5

Santa Monica, California, USA
level5ia.com

Spacious, open-plan rooms, desk equipment with chrome finish and a thing for timber minimise, Level-5's Santa Monica studio breathes retro chic. Layton will be jealous.

SERVICES SPOTLIGHT

This month: **Artery Studios**

ARTERY STUDIOS SPECIALISES in art and design for games, from traditional art, such as painted backgrounds and concept artwork, to 2D and 3D work on environments, characters, vehicles and weapons. Based in Budapest, Hungary, this five-year-old studio puts its clients' needs before anything else, explains owner Tamás Bakó.

"Here at Artery we don't just value the needs and requirements set by clients, but we also fully understand them," he says. "Since our team consists of games industry artists with years of experience, we know how to make assets work in-game and can even help clients optimise their pipeline and workflow.

"Missing a deadline is not an option for us and customer satisfaction is always number one. Developers don't have to keep a full art team on payroll for the entire period of the project. For quality art they can come to us and pay on demand."

Achieving the quality clients expect is down to its band of experienced artists with technical knowhow.

Artists at Artery are proficient and skilled in Photoshop and major 3D applications. It can also deliver full level art in engine packages already set up for in-game use with colliders, shaders, LODs and so forth.

Artery's recent work includes *Need for Speed: Undercover*, *Need for Speed: Hot Pursuit*, *Driver: San Francisco* and *The Witcher 2*. For the latter, Artery produced placeable objects, such as chairs and beds, and LODs for around 40 characters.

For its art services, the studio uses 3ds Max, Maya, Modo, ZBrush and Mudbox, and is also familiar with the Unreal and Unity 3D game engines, which it uses on a daily basis.

As well as working on level art and preparing levels for in-engine work, Artery also offers rigging, animation and motion capture services in-house.

Building on the talents of its art team, the studio is now looking to push its motion capture services.

"We have just launched our motion capture studios, which we are thrilled about," says Bakó. "We're also expanding more on the traditional art field in order to cover the full cycle of art services for games.

"Thanks to this, we are able to cover almost any art need a game development studio might have; small or big."

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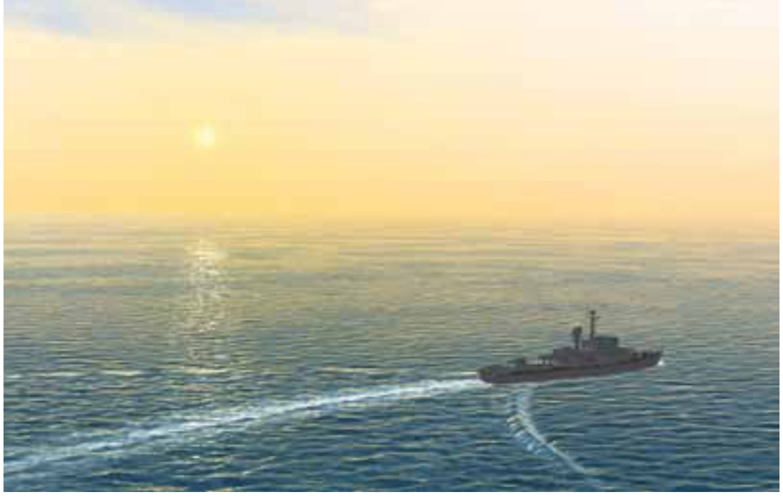
TOOLS SPOTLIGHT

This month: **Sundog Software**



FOUNDED IN 2006, Orlando-based middleware maker Sundog Software specialises in real-time outdoor simulation and rendering technology.

Initially, it started as a side project for founder Frank Kane, who was working as a development manager at the time.

"I wanted to keep my skills up, and at the time, realistic skies with 3D volumetric clouds weren't on the market – and it was a fun thing to work on," he says.

With Sundog, Kane wants to bring a "new level of realism to massive virtual environments".

His first product, SilverLining Sky, Cloud, and Weather SDK, did just that, and Sundog has since grown into a real business and has Kane's full attention.

Sundog's latest project aims to solve the ever-present problem of getting sea water to look and behave like the real thing. Triton Ocean SDK, released in late 2011, provides realistic bodies of water for any desired wave conditions with 3D waves, spray effects, and wakes at fast framerates.

The software works by taking advantage of whatever parallel computing resources it can find on the client system – compute shaders, CUDA, OpenCL or multi-core CPUs.

Kane says Triton's "speed, realism and wide support for different systems" is what separates it from other water rendering technologies on the market.

It runs a real wave simulation using fast Fourier transforms in real-time without relying on a single GPGPU technology. It is also able to render boat wakes, reflections, spray and foam in a single pass. The software runs on Windows and, more recently, Linux and MacOS supports DirectX9, DirectX11 and OpenGL.

As Triton is relatively new, the titles that have licensed it are still pre-release. However, Kane says most of its sales have been in the MMO space and for a hydro racing game which is in development. Triton is also popular in the serious games space, most notably with the US Navy, who has licensed Triton for use in its training simulators.

The newest feature that Sundog has introduced to the software is a simple API for fast rendering of 3D ship wakes.

Mobile and tablet devices are likely to be the next step for the technology, since Kane says mobile technology is approaching the point where it can run Triton. He also expects to have an OpenGL ES version of Triton out later this year.

"We'll always be expanding the list of game engines and platforms we offer tight integrations with," says Kane.

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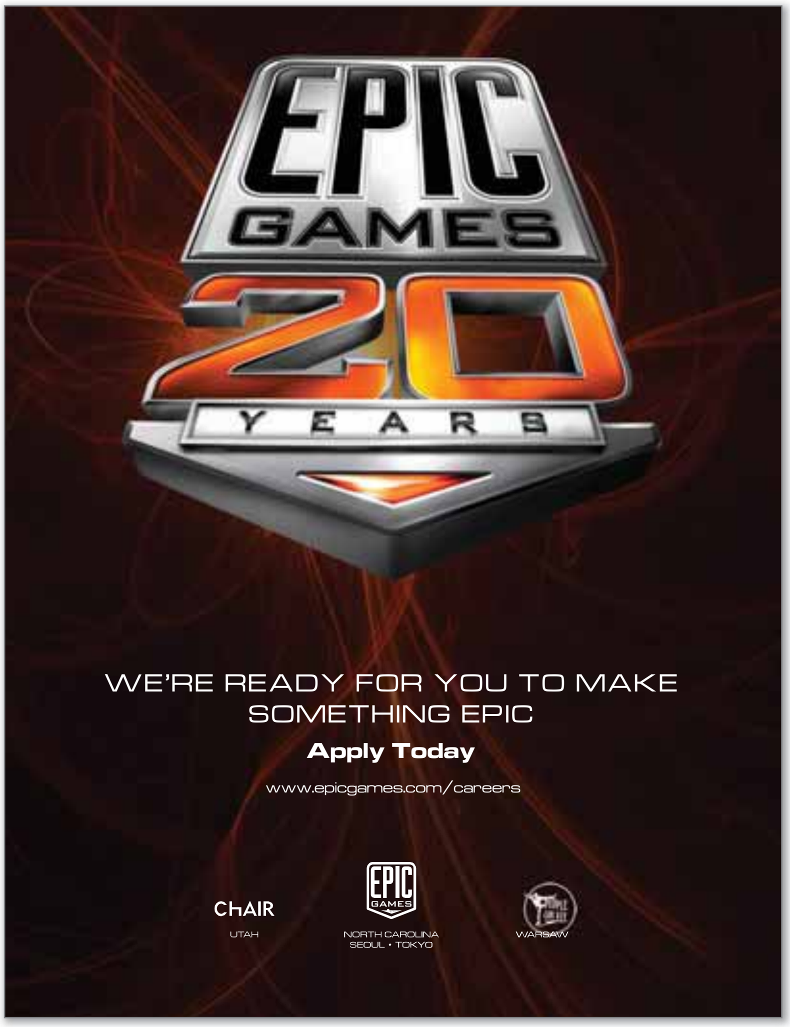

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TRAINING SPOTLIGHT

This month: **National Film and Television School**

NFTS
Beaconsfield Studios,
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United Kingdom

T: 0149 467 1234
E: games@nfts.co.uk
W: www.nfts.co.uk

THE UK'S NATIONAL Film and Television School is a respected institute that you might not associate with game development. But that could soon change thanks to the school's two-year MA course in games design and development.

The course, which started just last year at the Beaconsfield-based school, gives a maximum of eight students specialised training, which is intertwined with disciplines found in its fellow MA courses.

Jon Weinbren, head of games design and development at the NFTS, says the course aims to equip students with the skills and production knowhow in all areas of game development, so that they can "innovate within the games domain and beyond".

"No other MA games course takes place within what is effectively a working film, television and media production studio setup," says the course leader.

"Clearly there are also sub-specialisms within games development itself, but our approach is to allow students to develop deep cross-disciplinary games knowledge and understanding."

Students are encouraged to work together in cross-discipline teams. For instance, animation students teaming up with producers, writers or cinematographers.

In the first year, students undertake exercises and workshops together in sub-teams of specialisms to verse them in the creative and technical aspects of their craft, before working extensively with others prior to their final major projects in the second year.

> ***"There are also sub-specialisms within games, but our approach is to allow students to develop deep cross-disciplinary games knowledge."***
>
> Jon Weinbren, NFTS

The NFTS is well supplied, giving students access to Autodesk and Adobe software. It primarily teaches

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using Unity, but students can request access to UDK, CryEngine and other engines should they choose.

Weinbren says the school has had promising partnerships with sound design, production design and composing during the course's opening months.

The school's links with other courses specialising in software engineering, such as Imperial and Goldsmiths, offers students a true to life experience, which Weinbren believes "reflects the way the industry is evolving".

EA, Blitz Games, Crytek, Lionhead, Introversion, Littleloud, Sony, Microsoft and others are among the course's advisors. Visiting industry tutors also do a "significant amount of teaching", which includes practitioners from the above organisations as well as freelancers.

In future, the course will incorporate transmedia projects and closer integration with other disciplines at the NFTS.

"Games are now a significant part of the media landscape, and their cultural status and caché is becoming more and more on a par with more 'established' forms, such as cinema and television," says Weinbren, who highlights that NFTS graduates and alumni are Oscar and BAFTA award-winning practitioners.

"The games course aims to match these outputs, with an ambition to 'raise the game' in production values, technical quality, artistry and cultural reach."

The application deadline for January 2013 start is September 13th 2012. If you are interested in applying, contact games@nfts.co.uk.

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Images courtesy of Criterion Games

17 years of educating video game professionals

"The University of Hull have been a key partner for Criterion over the last 2 years, providing over 70% of our Graduate Engineering intake." Paul Ross, CTO, Criterion Games

"After some years working as a programmer, I decided to attend the MSc in Games Programming at Hull University. It was probably the best investment of my life. Now I'm a programmer at an AAA studio." Manuele Bonanno, MSc Graduate

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A sideways look at the games industry

THE INDUSTRY IN 140 CHARACTERS

A month in tweets by the industry elite

@raphkoster
I had ppl ask what "ludic percentage" was defined as. I think it is # of verbs that are inputs to 'formal games' div by total verbs in game
(Raph Koster)
July 11th

@Jonathan_Blow
I am really enjoying doing the math in this online quantum computation course. Math is nice once one has a certain seasonedness.
(Jonathan Blow, Number None)
July 12th

@rhipratchett
Thank god! After 2 years I can now talk about what I've been working on. I'm the lead writer on the new *Tomb Raider*.
(Rhianna Pratchett, writer)
July 12th

@CharlesCecil
Demand noted – announcement coming soon RT @dazsinuk: @CharlesCecil *Broken Sword 5*. I demand it forthwith! Please put us out of our misery!
(Charles Cecil, Revolution)
July 14th

@TimOfLegend
Every developer currently negotiating a pub deal: demand your IP rights! If only 1% win, it's still easier for the next developer!
(Tim Schafer, Double Fine)
July 16th

@Doctoe
Meeting at the Home Office today. They had doors like they #spooks has and I had to be escorted to the toilets #ukie
(Jo Twist, UKIE)
July 16th

@dantausney
No one is criticising *50 Shades* for being over-sexualised. They're criticising it for being terrible, google-researched, misogynistic trash.
(Dan Tausney, Chillingo)
July 17th

@danpinchbeck
#dearesther has now sold over 250,000 copies since launch. We always said we'd celebrate if we shifted 20,000.
(Dan Pinchbeck, thechineseroom)
July 18th

@therealcliffyb
Shareware: The original indie and free-to-play games. #oldschool
(Cliff Bleszinski, Epic)
July 19th

@BenjaminCousins
Bigpoint lay off staff, move out of mobile because competition is too great. Same thing will happen to them in F2P.
(Ben Cousins, ngmoco)
July 19th

AN OPEN MIND

MICHAEL PACHTER

We return to the grey matter of the industry analyst after a 20-month hiatus to hear his thoughts on the Wii U and cardboard games platforms

18% John Riccitiello's fears
21% Nintendo's cardboard console
61% the Wii U

Telling an audience at the Develop in Brighton Conference why the concept of the Wii U bewilders him:
"I don't get it. I think that essentially this is a solution in search of a problem. I mean, somebody had an idea – 'let's make the controller a tablet' – and there aren't many games that are going to take advantage of that.

Still on stage, this time pondering the success of Nintendo's various platforms:
Hardcore gamers will buy them; hardcore Nintendo fanboys will buy it. They could put out a piece of cardboard and say that it'll play *Mario* and they'll buy it."

And finally, on EA boss John Riccitiello's supposed worries:
"I had lunch with John Riccitiello last week. He was asking me why no one wants to buy his stock, He doesn't understand what's going wrong."

IT FIGURES : THE OUYA CONSOLE

In the less than **two** weeks from the Ouya hackable console's Kickstarter debut to the time of writing, **42,322** backers have pledged a total of **$5,410,978**, massively exceeding the **$950,000** goal set by the hardware platform's creators. Costing **$99** at retail, the Ouya is built around a Tegra 3 quad-core processor, and boasts **8GB** of RAM, **8GB** of internal flash storage, and runs on the Android **4.0** ICS. So far the platform has **one** single exclusive game; namely *Human Element* by studio Robotoki, the boss of whom is **one** of the **seven** thus far to pledge **$10,000** or more to the project. Meanwhile **1,312** have offered **$10** of their hard-earned cash. It is due for release in **March 2013**.

THE DEVELOP DICTIONARY

Our guide to games development terminology brings you the best and the worst of industry jargon. This month we bring you the letter B

Back loaded – *Stifle your chortling (if you're that creative with identifying innuendo). It's simply a contract model where payment is only made at a projects end.*

Backwards induction – *This process may sound like a central heating system, but it is in fact the system by which a gameplay strategy model is reverse engineered from the point of its conclusion to its start, so as to devise the solution (for the player) or the choice available (for the game designer).*

Bark – *Either the noise of a hound (in the real world) or a short burst of in-game dialogue, typically from an NPC, and often automatically triggered for dramatic effect at a precise moment.*

Bézier curve – *A curved line, infinitely scalable and thus cheap on memory, adjustable after its creation by merit of the fact it is made of a series of connected points.*

Bi-directional Reflectance Distance Function (BRDF) – *Aside from being a real mouthful, and great for making yourself feel clever in the presence of non-developers, this term describes a process of considering how the reflection of an object occurs, always considering the position of the player's view and the light source.*

Blackbox testing – *A testing and analysis process whereby you don't even let your poor testers (or unwitting public) know anything about what they are testing, or what it might be a part of.*

Bloom – *A lighting effect inspired by the way light from behind an object 'spills' round in front of the said object when viewed via devices like video cameras.*

BLT – *A bacon, lettuce and tomato baguette to many of our readers, but in the world of games development, it's a rendering technique otherwise known as a Block Transfer.*

Boolean – *A word so nice to roll round the tongue developers throw it about like a Frisbee in a park. As for what it means, it either refers to a kind of variable only blessed with two states, or a search method reliant on comparative operators.*

Bottom-up AI – *An approach to artificial intelligence where individual units or characters within the game world are only granted intellect specific to their goals, rather than an awareness of any wider structure or strategy.*

Boundary testing – *A process of testing whereby a tool's ability to accept inputs beyond its intended range is toyed with.*

Brand Manager – *The employee – possibly at your publisher – who hassles you enthusiastically for assets.*

Brooks' law – *A theory that "adding manpower to a late project makes it later". Still, sometimes it's all you can do.*

Bug – *Nobody likes a software bug, although their existense does keep armies of testers in work. In the simplest form, a bug in this context is an unexpected error in a given piece of software's code.*

Bullet time – *It still exists, apparently. You might remember it from Max Payne, when it still felt exciting and fresh.*

Bump mapping – *A well-established technique for texturing a surface by imitating cast lighting to give an uneven appearence.*

Button bashing – *A cardinal sin, particularly frowned upon by proper fighting game players that lurk in the few remaining arcades. It's also something we've all done, and evolves randomly stabbing buttons due to a lack of familiarity with a game.*

develop FORWARD PLANNER

SEPTEMBER 2012

User Interface Tools & User Interaction
Touch-screens, motion controllers and gesture inputs have changed how gamers interact – but how have they changed how games are made?

BUILD Special Feature: Graphics & Rendering
An update on the tools and applications for cutting edge graphics and on-screen beauty.

Regional Focus: London
We delve into the UK's capital city, where a number of new studios have set-up shop.

Events:
Develop Quiz – September 19th
Tokyo Game Show – September 20th to September 23rd

OCTOBER 2012

Start your own studio
Setting up on your own? We can help out with a range of features written by experts in business, finance and law.

BUILD Special Feature: Character Animation
This head-to-toe guide examines what's new in the technologies that make game characters walk, run and save the world.

Regional Focus: South & Latin America
We take a look at one of the most talked about, and least explored emerging markets.

Events
Apps World Europe – October 2nd to October 3rd
MCV / Xbox 360 pub quiz – October 4th
Games Media Awards 2012 – October 18th
GameCity 7 – October 20th to October 27th

NOVEMBER 2012

Regional Focus: Canada
Our yearly look at the games development firms operating in British Columbia, Quebec, Nova Scotia and everywhere inbetween in the expansive country.

Contracting
How flexible workforces can ease your production woes – and advice on both becoming a contractor, and working with a freelance team .

Events:
Montreal International Game Summit – November 13th to November 14th
London Games Conference 2012 – November 21st

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THE FAQ PAGE: MARK HEALEY

Develop grills respected figures from the global games industry

Media Molecule creative director Mark Healy only has time for two-to-three hours of game time per week, depending on the condition of his bowels

Who are you and what do you do?
I am Mark Healey, creative director at Media Molecule. This mostly involves coming up with ideas, followed by a painful period of trying to make other people understand what you are on about. Then, once understood, it's a battle to convince them that the idea is actually good. If you're lucky, you get to actually manifest the idea – this is the bit I like.

What are you working on right now?
A new and exciting project which I am not allowed to talk about, as much as I would love to. We are actually looking for some new people to come and work with us on that.

What was the first product you worked on?
My first commercial game was a Commodore 64 game titled *KGB Superspy* for Codemasters some 20 years ago. I coded it in 6510 assembler, and did all the graphics using a utility called 3-in-editor' by Tony Crowther. I wonder what he's up to these days?

What was the first video game you ever played, and did you enjoy it?
The first game I can remember playing was *Space Invaders*, which I loved, except I never had many 10p's to insert.

What was the most recent video game you ever played, and did you enjoy it?
Most of my games playing these days is quick fixes on my iPhone while sitting on the toilet. Last thing I remember playing is an adventure game called *The Lost City*. It's dead simple, but I like the graphics and atmosphere. I've also been playing a series of games by a company called Toca Boca with my toddler son on his iPad.

> ***"I think the explosion of titles on iPhone is fantastic. It reminds me a lot of the eighties when one or two guys were making stuff from their bedrooms."***

What is your favourite game ever, and for what reason?
It used to be *Mario 64*, but was toppled by *Mario Galaxy*, which I played through with my son. He loved it, and so did I – why? Because it's absolutely fucking brilliant, that's why.

How many hours a week do you spend playing video games?
Hmmm, let's try and work it out. I have a poo at least once a day, often more, and each session is probably ten minutes; so let's say 20 minutes times seven days, then add a bit of random playing outside of the bog, we're probably at about two-to-three hours a week.

What do you enjoy about the video games industry today?
The only bit I really enjoy is when I get a chance to sit down and get my hands dirty making stuff with other talented people – of which there are a lot. Pretty much everything else gets on my tits. I think the explosion of titles on iPhone is fantastic, there's some real innovation going on there. It reminds me a lot of the eighties when one or two guys were making stuff from their bedrooms.

What disappoints you about the video games industry today?
Companies that knock out the same old games with slightly improved graphics, and Facebook games.

Of all the games you have worked on, which has been your favourite to work on?
Rag Doll Kung Fu – it's probably the least successful commercially, but I had genuine fun making it. The filming was a gas, learning to code again was interesting, making the graphics was a breeze, and I even got a chance to play guitar and make some music.

What game would you most liked to have worked on?
Lemmings. I remember when that came out, it was such a breath of fresh air; I am a real junky for novelty.

What hobbies, collections or interests do you have that are completely unrelated to video games?
I like creating and recording music – in fact, I'm working on a concept album right now, so watch this space. And I try to swim whenever I get a chance; even though I'm rubbish at it. Other than that my main focus is entertaining my son, and watching him develop. I also happen to be a Reiki master.

What is your favourite book, movie, TV show and album of all time?
Book? The art of dreaming by Carlos Castenada. In fact, any of his books. The movie is Apocalypse Now, the extended version. TV Show? A toss-up between Dragons Den and The Apprentice – I'd love to be like Alan Sugar sometimes, rather than trying to be diplomatic and sensitive.

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THE INTERNATIONAL MONTHLY FOR
GAMES PROGRAMMERS, ARTISTS,
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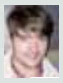

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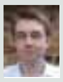

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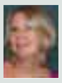

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Tel: 01992 535646 **Fax:** 01992 535648 **Web:** www.develop-online.net

Develop Magazine. Saxon House, 6a St. Andrew Street. Hertford, Hertfordshire. SG14 1JA
ISSN: 1365-7240 Copyright 2011 Printed by The Manson Group, AL3 6PZ

Subscription **UK: £35 Europe: £50 Rest of World: £70**
Enquiries, please email: dev.subscriptions@c-cms.com Tel: 01580 883 848

Charges cover 11 issues and 1st class postage or airmail dispatch for overseas subscribers

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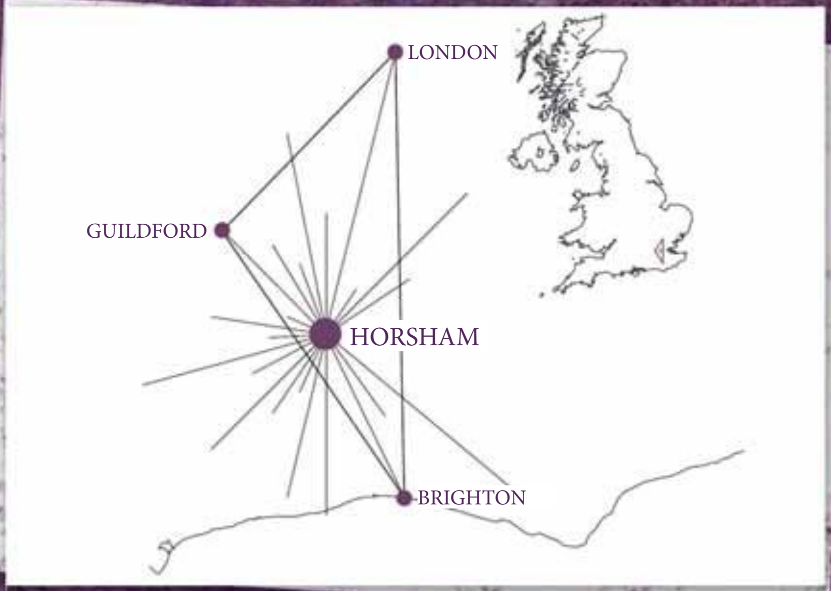

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